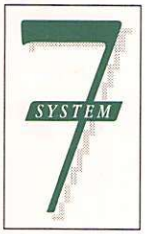
Macintosh Reference



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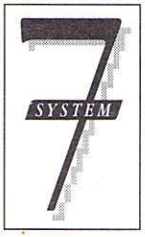
Macintosh Reference



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Radio and television interference

The equipment described in this manual generates and uses radio-frequency energy. If it is not installed and used properly—that is, in strict accordance with Apple's instructions—it may cause interference with radio and television reception.

This equipment has been tested and complies with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation.

You can determine whether your computer is causing interference by turning it off. If the interference stops, it was probably caused by the computer or one of the peripheral devices.

If your computer system does cause interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the computer to one side or the other of the television or radio.
- Move the computer farther away from the television or radio.
- Plug the computer into an outlet that is on a different circuit from the television or radio. (That is, make certain the computer and the television or radio are on circuits controlled by different circuit breakers or fuses.)
- Install a rooftop television antenna with a coaxial cable lead-in between the antenna and the television.

If necessary, consult your authorized Apple dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet, prepared by the Federal Communications Commission: *How to Identify and Resolve Radio-TV Interference Problems* (stock number 004-000-00345-4). This booklet is available from the U.S. Government Printing Office, Washington, DC 20402.

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This product was tested for FCC compliance under conditions that included the use of shielded cables and connectors between system components. It is important that you use shielded cables and connectors to reduce the possibility of causing interference to radios, television sets, and other electronic devices. For Apple peripheral devices, you can obtain the proper shielded cables from your authorized Apple dealer. For non-Apple peripheral devices, contact the manufacturer or dealer for assistance. △

About This Book

The *Macintosh Reference* is your sourcebook for using the Macintosh computer. This manual is a "working reference"—that is, it provides step-by-step instructions for all the tasks you are likely to perform with the computer.

If you use your Macintosh on a network, you'll also want to consult the *Macintosh Networking Reference* for instructions on networking tasks, such as sharing files with another Macintosh.

No matter which Macintosh computer you use, the primary operations and tasks you perform work the same way, and all of them are covered in this book.

One procedure not covered here, however, is setting up your Macintosh system. Consult the booklet entitled *Setting Up Your Macintosh* or other setup instructions that came with your computer for the instructions you need to set up your computer hardware.

What you should know to use this book

You can use the *Macintosh Reference* most efficiently if you are already familiar with the Macintosh, because this book's instructions are concise and specific. If you're new to the Macintosh, it's a good idea to go through the training disk, *Macintosh Basics,* and the tutorial book, *Learning Macintosh,* before you read this book.

But even if you're not familiar with the Macintosh, this reference book will give you the information you need to perform a wide variety of tasks. By simply following the steps, you can work your way through any task—whether it's new or whether you just need a quick review.

How to use this book

As noted previously, the *Macintosh Reference* is organized according to the tasks that you perform when working with your Macintosh.

Complete information for each task

Each task is presented in steps. The steps are numbered with large numerals.

When you turn to a task in this book, the numbered steps provide all the instructions you need to accomplish that task.

Two ways to locate tasks

The tasks in this book are grouped according to the kinds of work you do with the Macintosh—creating and editing documents, managing files, printing documents, working with disks, and so forth.

Two parts of the book will help you quickly locate the tasks you want to do: (1) the table of contents, which lists the major categories of information and the names of all the tasks, and (2) the comprehensive index, which lists each task under several different terms that you might think of in relation to that task.

Review of Macintosh fundamentals

Chapter 1, "A Review of Standard Macintosh Operations," provides a brief review of the fundamentals—using the mouse, working on the desktop, using menus, basic editing, and so on.

If your Macintosh experience is limited, you can use Chapter 1 as a "refresher course" at any time.

Summaries for expanding your Macintosh system

Chapter 8, "Expanding Your Macintosh System," summarizes the procedures involved in connecting your computer to a network and adding new components to your computer system. The instructions in these chapters are intended for quick review only. Be sure to also consult the manuals that come with the components you're adding.

A note about illustrations

Because there are many ways of organizing and customizing your work space, the illustrations in this book may not exactly match what you see on the screen.

Some conventions used in this book

The primary information in this book is presented in step-by-step instructions. All steps are numbered, and all actions are described in **boldface** type.

The Macintosh lets you perform many actions in more than one way. For example, you can often choose a command from a menu or type a combination of keys on the keyboard to initiate the command. This book provides step-by-step instructions for one method and advises you of other methods.

❖ *Another way to perform this action:* Check paragraphs that begin with this symbol (❖) for alternate methods of accomplishing a task. ❖

Because many tasks are related to other tasks, this book contains numerous cross-references. These cross-references always appear at the end of the related section, and they are marked by an arrowhead. Here is a sample.

➤ *See also:* "Changing the Highlight Color" in Chapter 7

This symbol (▶) appears on right-hand pages to indicate that a task continues on the next page.

About the other learning materials

The *Macintosh Networking Reference*, a companion volume to this book, provides instructions and explanations for using your Macintosh with other computers on a network.

Other information and training materials may also be included with this book.

1

A Review of Standard Macintosh Operations

The Apple Macintosh computer is designed for ease of use and learning. It presents you with a simulated desktop on your screen, where you can see and manipulate *icons*—graphic depictions of documents, disks, file folders, and the other parts of your system and the information you work with. Figure 1-1 shows several of the icons you'll see on your Macintosh desktop.

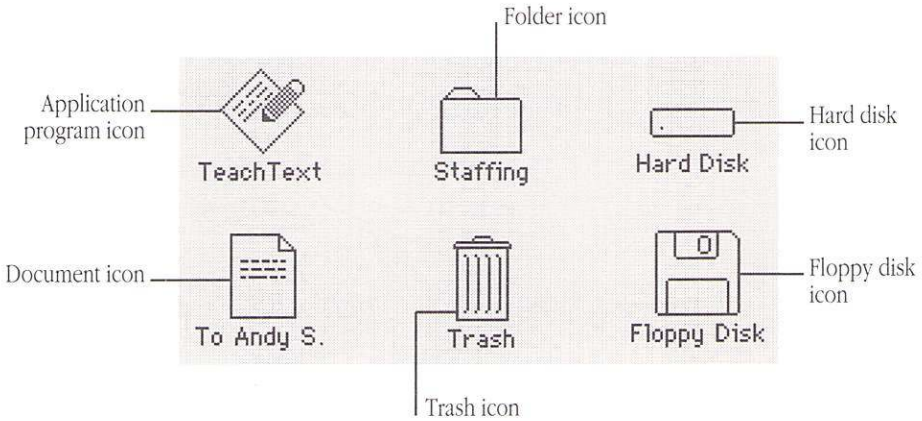


Figure 1-1 Examples of Macintosh icons

You use about two dozen simple operations to work with your Macintosh, and these operations are the same regardless of the program you're using or the task you're performing.

This chapter reviews the standard Macintosh operations and provides brief, illustrated instructions for performing each one. If you are new to the Macintosh, you will probably want to use the *Macintosh Basics* disk and the tutorial book, *Learning Macintosh* (or other training materials that came with your computer), before reading this chapter. If you are familiar with the Macintosh, you can use this chapter for review.

Using the mouse

You use the *mouse*—a kind of pointing device—to begin most operations on the Macintosh. When you move the mouse on your desk, a corresponding *pointer*, such as the arrow shown in Figure 1-2, makes the same movement on the screen.

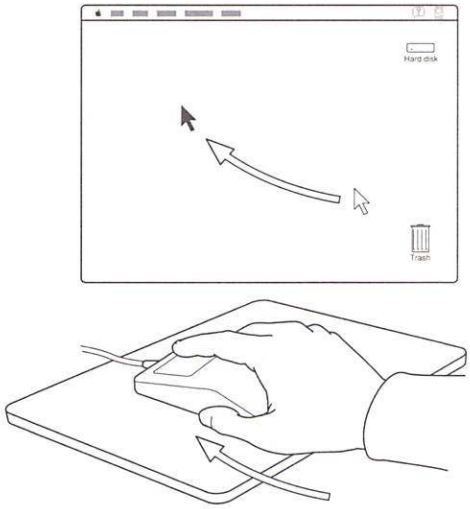


Figure 1-2 Mouse and pointer movement

The pointer is not always an arrow—it often takes a different form, such as an I-beam for editing text or a crosshair for selecting graphics. Figure 1-3 shows three common forms the pointer takes.

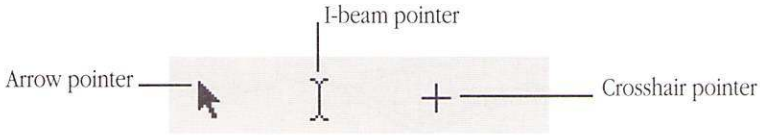
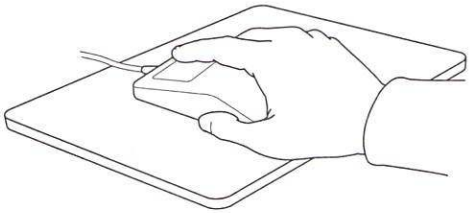


Figure 1-3 Three forms of the pointer

Pointing

Pointing is simply moving the pointer onto an object or area on the screen.



1 To point, first grasp the mouse and slide it across the table top, as you watch the pointer on the screen.

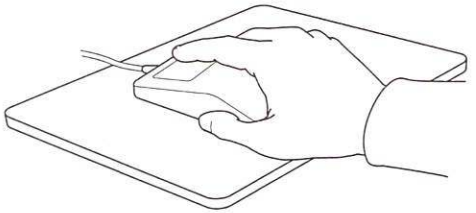
The pointer moves in the same direction in which you move the mouse.

2 Continue moving the mouse until the tip of the pointer is on the item you want.

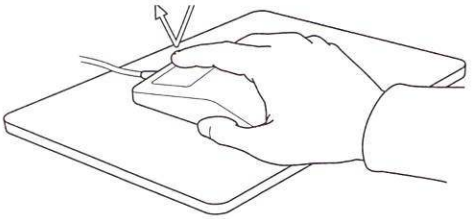
If you run out of room on your desk, you can pick up the mouse and place it at another spot. The pointer on the screen will not move while the mouse is off the table top.

Clicking

Clicking begins an action at the pointer's location.



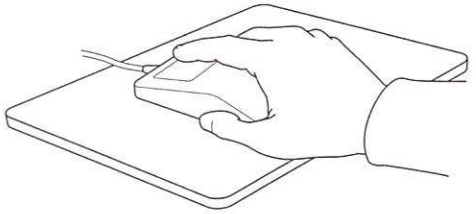
1 To click, first point to an object on the screen by moving the mouse.



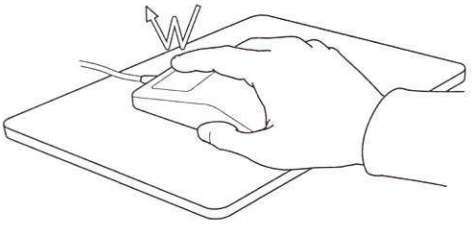
2 Without moving the mouse, quickly press and release the mouse button with your index finger.

Double-clicking

Double-clicking is usually a way to display the contents of an icon or document or to start an application program.



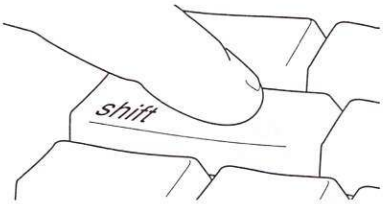
1 To double-click, first point to an object on the screen by moving the mouse.



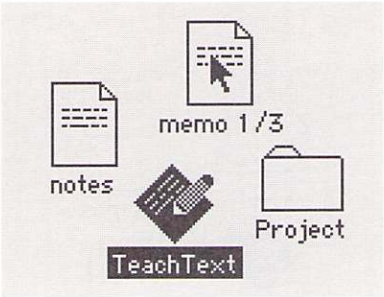
2 Without moving the mouse, press and release the mouse button twice in rapid succession.

Shift-clicking

Shift-clicking is a variation of clicking you use to select multiple icons or other objects that are not near each other or to select only some of the items in a group.



1 To Shift-click, first press the Shift key on the keyboard.

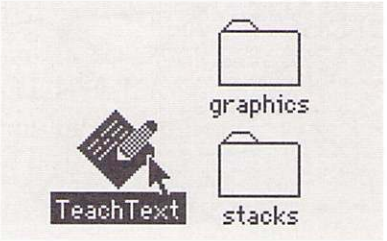


2 While holding down the Shift key, click each object that you want to select.

Each object becomes *highlighted* when you click it; that is, it changes color.

Dragging

Dragging allows you to move an item on the screen as you move the mouse. You also drag to move an icon or a window and to select a group of icons.

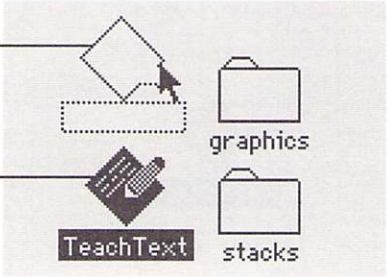


1 To drag an icon, first point to the icon you want to move and press and hold the mouse button.

The object becomes highlighted when you press the mouse button.

As you drag, an outline of the icon follows the pointer.

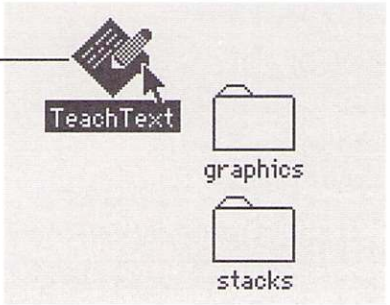
The highlighted icon stays in its original position while you drag.



2 Move the mouse while continuing to hold down the button.

An outline of the icon moves with the pointer, indicating the location of the icon as you drag.

The highlighted object jumps to a new position when you release the mouse button.



3 Release the mouse button when the pointer is where you want the icon to be.

The object remains highlighted when you release the button.

Working with the Finder

You use a program called the *Finder* to work with the icons and windows displayed on your Macintosh desktop. The Finder is part of system software; it starts automatically when you turn on the computer, and it is always open.

You can think of the Finder as your information manager: You use it to open windows, start application programs, copy files, and see the contents of your disks and folders. You're using the Finder whenever you work with an icon on your desktop (such as when you move or open a disk icon) or use a window that displays the contents of a disk or a folder.

A window that shows the contents of a disk or a folder is called a *Finder window.* Figure 1-4 shows an example of a Finder window, with the contents arranged by icon.

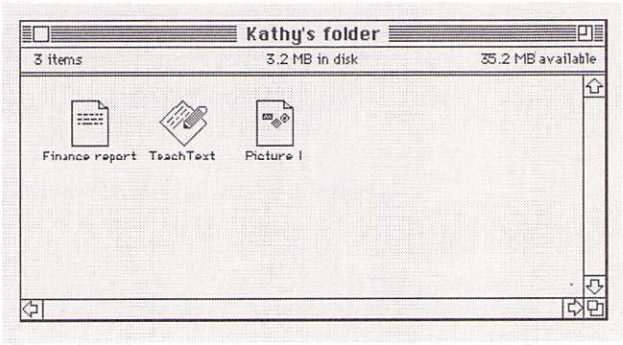


Figure 1-4 A Finder window showing a disk's contents

Most icons can be opened into windows—either a Finder window or a window created by an application program. You can have more than one window open at a time. But only one window can be *active* at a time. An active window is on top of all other windows on the desktop. It's the window you're working in.

You can move windows, change their size, and select the window in which you want to work. (See Figure 1-5.)

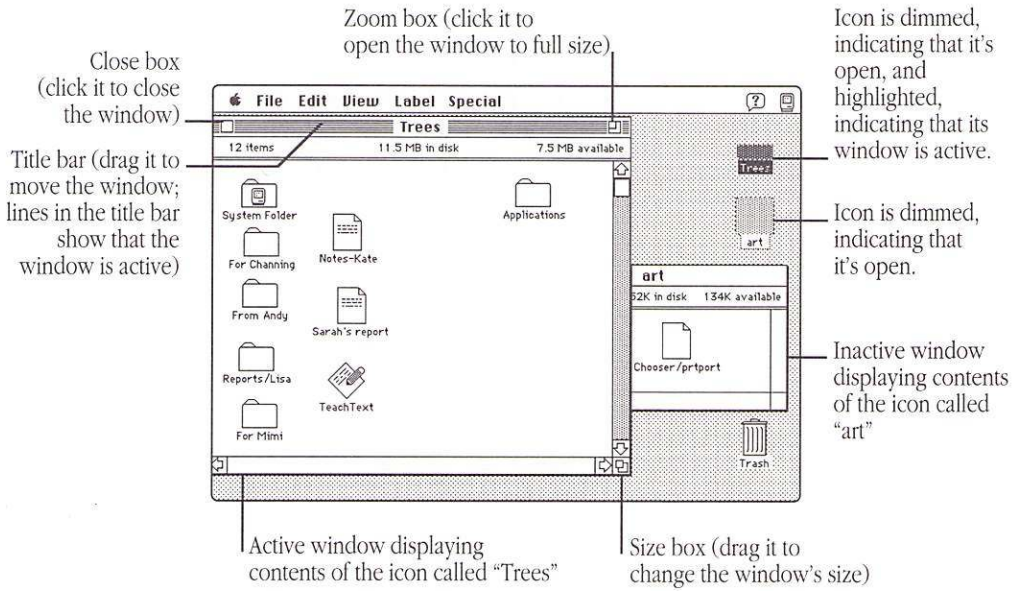


Figure 1-5 Two open windows on the desktop

Selecting an icon

Selecting means choosing an object to act upon. When working with the Finder, you click an icon or other object to select it. When selected, the object appears highlighted (its color changes).

1 To select an icon, first point to the icon you want to select.

2 Click the icon.

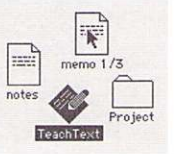
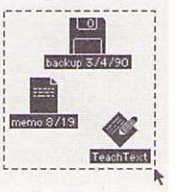
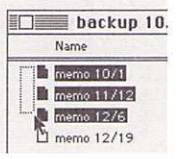
When you press the mouse button, the icon becomes highlighted to show that it is selected.

➤ *See also:* "Changing the Highlight Color" in Chapter 7

Summary: Selecting icons on the desktop or in a Finder window

Table 1-1 summarizes various ways you can select icons on the desktop or in a Finder window.

Table 1-1 Ways to select items on the desktop or in a Finder window

Task	Instruction	Example
Selecting a single icon	1. Place the pointer on the icon. 2. Click.	
Deselecting an icon	1. Place the pointer anywhere except on the selected icon. 2. Click.	
Selecting multiple icons (one at a time)	1. While holding down the Shift key, place the pointer on each icon. 2. Click each icon (one at a time).	
Deselecting one icon in a group of selected icons	1. While holding down the Shift key, place the pointer on the icon to be deselected. 2. Click the icon.	
Selecting multiple icons that are near each other	1. Place the pointer at one corner of the group of icons. 2. Drag diagonally until the icons are selected.	
Selecting contiguous icons in a list	1. Place the pointer at the top or bottom of the list. 2. Drag up or down the list until the icons are selected.	
Selecting text in an icon's name	1. Click the icon's name to select it. 2. Place the pointer at one end of the text to be selected. 3. Drag until the text is selected.	

➤ *See also:* "Selecting Part of the Text in an Icon's Name" later in this chapter

Opening an icon

The quickest way to open an icon is to double-click it.

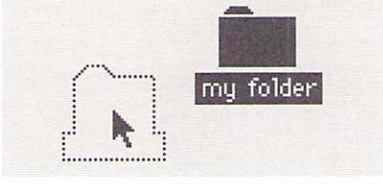
Double-click the icon to open it.

When you double-click the icon, the icon becomes highlighted and then opens.

❖ *Another way to open an icon:* You can also open an icon by selecting it and choosing the Open command from the File menu or using the keyboard shortcut ⌘-O or ⌘–Down Arrow. ❖

Moving an icon

You move an icon by dragging it.

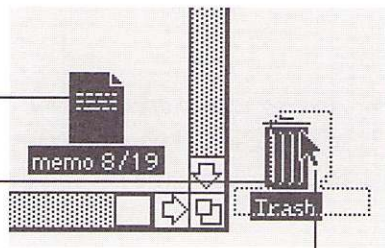


Drag the icon to move it.

An outline of the icon moves with the pointer as you drag. When you release the mouse button, the icon appears at the new location.

Discarding an icon

You can remove an icon from the desktop or from a Finder window by dragging it to the Trash, usually located at the bottom-right corner of the desktop. To erase the contents of the icon from your disk, you choose the Empty Trash command from the Special menu.



1 To remove an icon, first drag the icon to the Trash so that the Trash icon is highlighted.

The pointer and an outline of the icon move as you drag; the Trash icon becomes highlighted when the tip of the pointer reaches it.

2 Release the mouse button when the Trash icon is highlighted.

When you release the button, the Trash icon bulges to show that something is inside it. The Trash icon is then no longer highlighted.

If you decide you want the item back, simply open the Trash as you would any other icon, and drag the icon out of the Trash.

3 To erase the contents of the Trash, choose Empty Trash from the Special menu.

A warning message may appear. Click the OK button to continue, or click the Cancel button to stop the Trash from being emptied. Once you empty the Trash, the discarded icon and its contents are gone.

You can turn off the warning message if you want. The system won't let you discard a locked document or an item that's currently in use.

❖ *Another use for the Trash icon:* You can eject a floppy disk from a disk drive by dragging the disk icon to the Trash. This does *not* erase the disk. ❖

➤ *See also:* "Ejecting a Disk From the Desktop" in Chapter 6
"Turning the Trash Warning On or Off" in Chapter 7
"Disconnecting From a Shared Disk or Another Macintosh" in Chapter 3 of the *Macintosh Networking Reference*

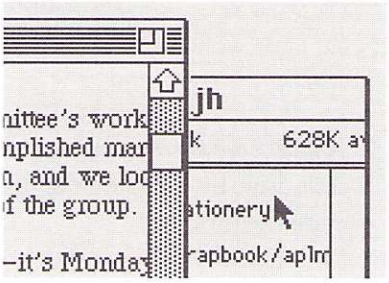
Viewing the contents of a window

You can see a window's contents in two ways—by adjusting the size of the window or by *scrolling* to make a different part of the window visible. You have to scroll to see the contents of documents that are longer or wider than the screen.

➤ *See also:* "Displaying a List of Items by Name, Size, Label, Kind, or Date" in Chapter 5
"Changing to a Different List View" in Chapter 5

Making an open window active

You make an open window active by clicking inside it. (You may have to move or resize other windows if the one you want is open but covered by other windows.)



To make a window active, click anywhere in that window.

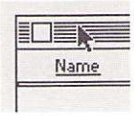
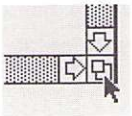
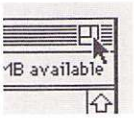
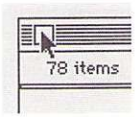
When you click, the window moves in front of other items displayed on the screen.

❖ *Another way to make a window active:* You can make an open folder or disk window active by double-clicking its dimmed icon. ❖

Summary: Moving a window and changing its size

Table 1-2 summarizes the ways to move a window and to change a window's size.

Table 1-2 Ways to move a window and change its size

Task	Instruction	Example
Moving a window	1. Place the pointer in the window's title bar (at the top of the window). 2. Drag the window to a new location. (An outline of the window follows the pointer.)	
Resizing a window	1. Place the pointer in the size box (in the window's lower-right corner). 2. Drag. (An outline of the window shows the new size.)	
Resizing a window to show all of its contents	1. Place the pointer in the zoom box (in the window's upper-right corner). 2. Click. (Click again to reverse the process.)	
Closing a window	1. Place the pointer in the close box (in the window's upper-left corner). 2. Click.	

❖ *Another way to close a window:* You can also close the active window by choosing the Close command from the File menu or using the keyboard shortcut ⌘-W. ❖

Seeing other parts of a window by scrolling

When you're working within a window, you can easily change your view of the contents by *scrolling*. The amount you see in the window at any one time depends on the window's size.

Figure 1-6 shows the scrolling options.

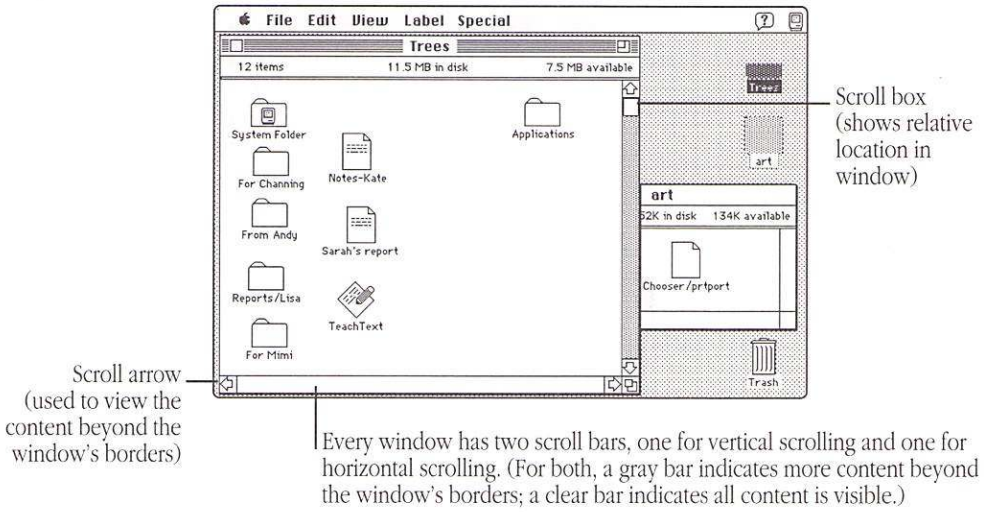
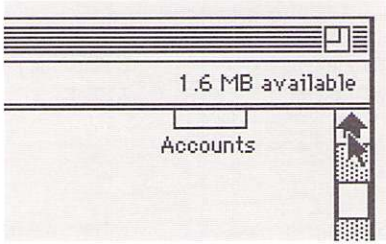


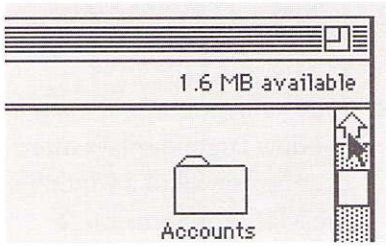
Figure 1-6 Scrolling options in an active window

The up arrow displays content above the window's top border; the down arrow displays content below the window's bottom border. The left and right arrows display content beyond the left and right borders of the window, respectively.



1 To scroll through the content of a window, place the pointer on one of the scroll arrows and hold down the mouse button.

The window's contents move to show the part that was hidden. The scroll box also moves in the direction of the arrow.



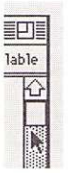
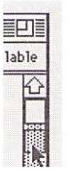
2 Release the mouse button when the item you want to see is visible.

❖ *Another way to use the scroll arrows:* Simply click a scroll arrow to scroll in small increments (about one-half inch when you're using the Finder). ❖

Additional scrolling options

You can also use the gray area of a scroll bar or the scroll box to view a window's contents. Table 1-3 shows these other scrolling options.

Table 1-3 Additional scrolling options

Task	Instruction	Example
Scrolling by the windowful	1. Place the pointer in the scroll bar. 2. Click.	
Scrolling to a specific part of a window	1. Place the pointer in the scroll box. 2. Drag.	

- *Another way to see more of a window's contents:* Making the window larger displays more of its content. Clicking the zoom box displays all of a window's contents (or as much as will fit on the Macintosh screen). ❖

Using menus

Another of the standard Macintosh operations is using menus. Whether you are working with the Finder or in an application program, you use menus in a consistent way.

Certain menus and core commands are provided as part of nearly all Macintosh software. These core elements include the Apple, File, Edit, Help, and Application menus and commands such as Cut, Copy, and Paste. (See Figure 1-7.)

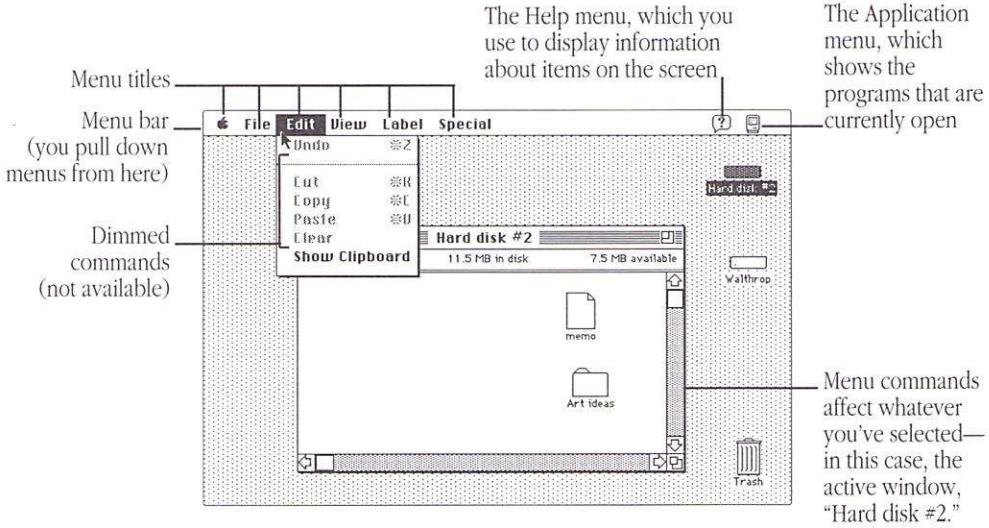
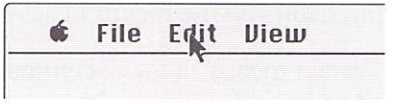


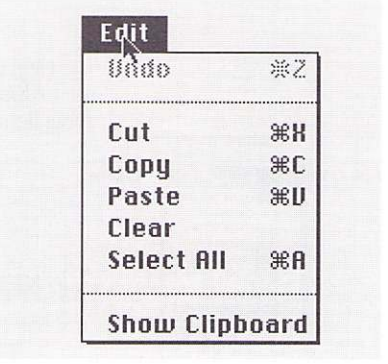
Figure 1-7 Menu bar with the Edit menu pulled down

Pulling down a menu

The principal type of Macintosh menu is called a *pull-down menu.*



1 To pull down a menu, first point to the title of the menu you want in the menu bar at the top of the screen.

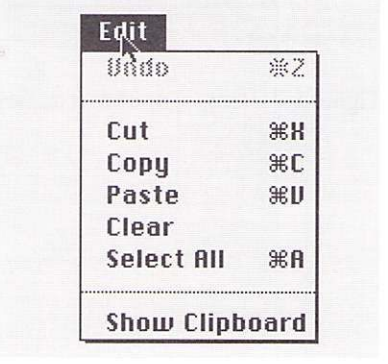


2 Press and hold the mouse button to open the menu.

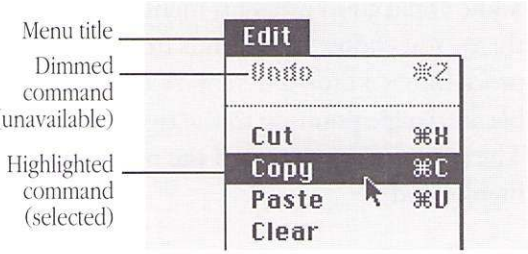
The menu closes when you release the mouse button.

Choosing a menu command

You choose a command with the menu pulled down.

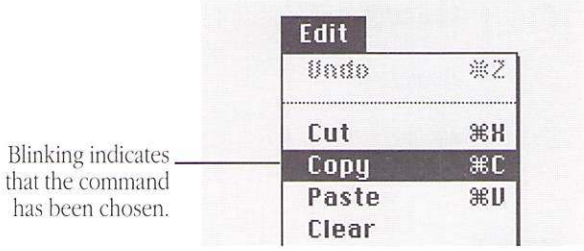


1 To choose a menu command, first pull down the menu by pointing to its title and holding down the mouse button.



2 Drag the pointer to the command you want.

As you drag, each command that is not dimmed becomes highlighted when the pointer is on it. (Dimmed commands are not available and thus cannot be chosen.)



3 Release the mouse button to choose the highlighted command.

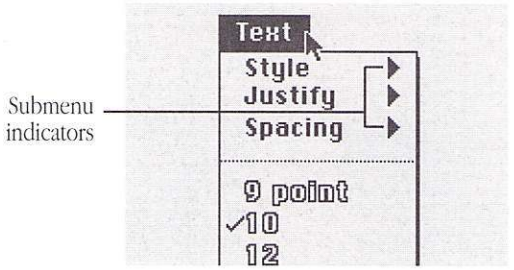
The command blinks in the menu, then the menu closes and the command takes effect.

❖ *Another way to choose a command:* Many commands have a keyboard equivalent, usually made up of the Command key (⌘) and one or more other keys. Each of these *keyboard shortcuts* is displayed to the right of the command it represents in the menu. ❖

➤ *See also:* "Using Special Keys and Indicators on the Keyboard" later in this chapter
"Adjusting the Blinking of a Menu Item" in Chapter 7

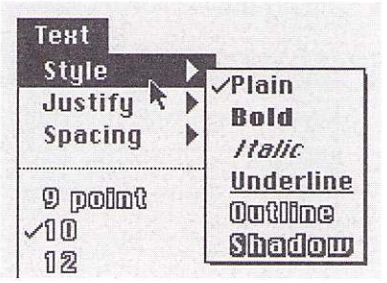
Using a submenu

Some application program menus have submenus associated with them. You choose commands from submenus by dragging, but the procedure is a little different. A submenu is indicated by a small black triangle pointing to the right, next to the command name. The submenu opens when the menu item to which it belongs is highlighted.



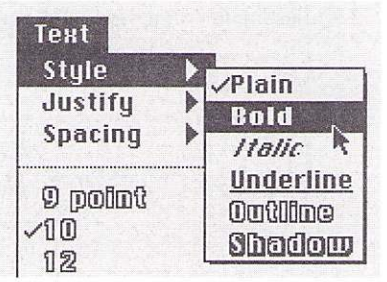
1 To use a submenu, first pull down its corresponding menu.

A small triangle at the right of a menu item shows that the item has a submenu.

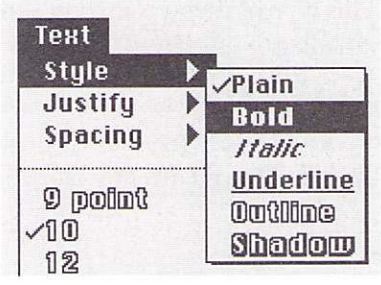


2 Drag the pointer to the item with a submenu you want to open.

When the item is highlighted in the menu, the submenu opens.



3 Drag sideways onto the submenu and then down until the command you want becomes highlighted.



4 Release the mouse button to choose the highlighted submenu command.

The command blinks in the submenu, then the submenu and menu close and the command takes effect.

Using a pop-up menu

Pop-up menus are similar to pull-down menus, but they don't reside in the menu bar. A common example is the pop-up menu in the on-screen box you use to open and save documents within an application program. (This box is called a *directory dialog box*.)

Figure 1-8 shows a directory dialog box that contains a pop-up menu. A small triangle next to the menu's title (like the one in Figure 1-8) indicates that it is a pop-up menu.

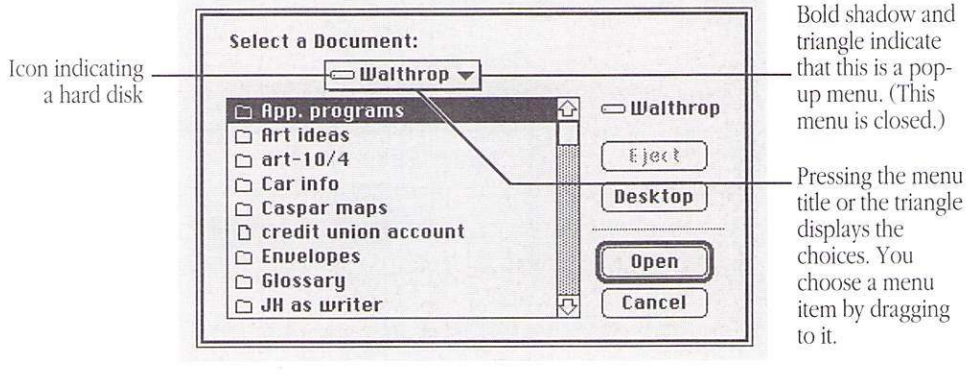
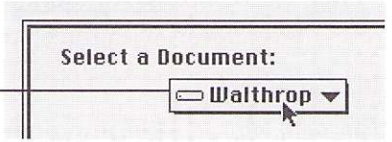


Figure 1-8 A pop-up menu in a directory dialog box

This type of menu is used in some programs to choose settings or variables.

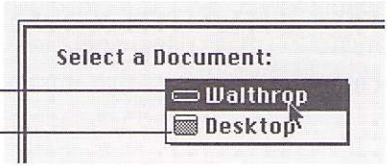
A pop-up menu can extend above or below its title, and some extend in both directions. The item displayed as the menu title is the item that is currently chosen.



Closed pop-up menu (with hard disk icon)

1 To use a pop-up menu, point to the menu's title and hold down the mouse button.

The menu opens, showing some or all of the items available.

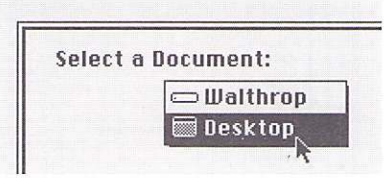


Open pop-up menu

Desktop level (the disk "Walthrop" is on the desktop)

2 Drag the pointer to the item you want in the pop-up menu.

The item becomes highlighted when the pointer is on it.



3 Release the mouse button to select the highlighted item.

The pop-up menu closes and the item selected now appears as the menu title.

➤ *See also:* "Using a Directory Dialog Box" later in this chapter
"Moving Through Levels of Folders With a Pop-up Menu" in Chapter 5

Responding to messages on the screen

The Macintosh has several standard ways of displaying messages on the screen. The most common form of message is a *dialog box,* which requires that you choose an option or supply needed information before the Macintosh can continue doing what you want it to do.

Some of the most frequently used commands on the Macintosh present dialog boxes. For example, when you close a document, a dialog box appears with three options: save the document and close it, close the document without saving it, or cancel the action. (See Figure 1-9.)

A bold line around a button means that pressing the Return key or Enter key is the same as clicking this button.

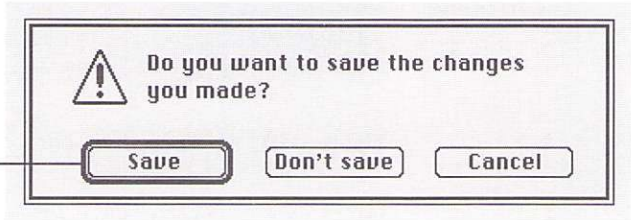


Figure 1-9 A dialog box that alerts you to save changes before closing a window

You click one of the buttons in this dialog box to confirm the command you chose. In some other dialog boxes, you may need to choose a name from a list or type a name or number, and then click a button labeled "OK" before the command takes effect. Menu commands that are followed by three dots always display such a dialog box.

Using a directory dialog box

When you're using an application program, several commands, such as Open and Save As in the File menu, display a *directory dialog box,* which shows a list of the files on the current disk or in a folder. (See Figure 1-10.)

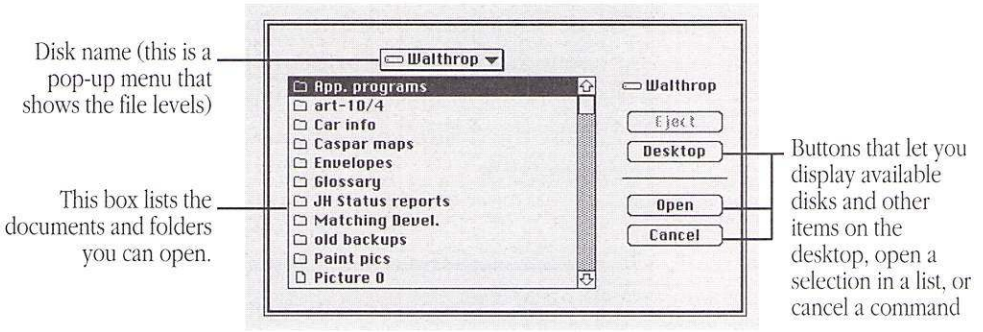
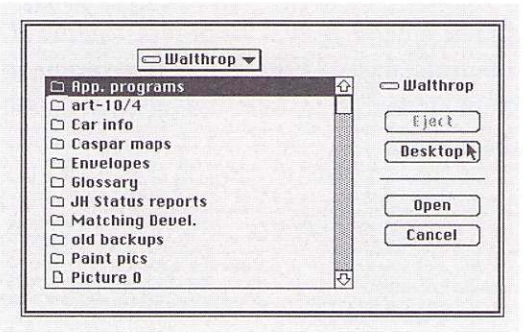


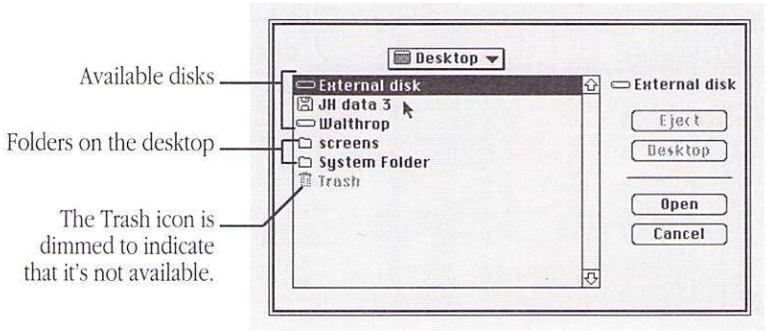
Figure 1-10 A directory dialog box

You select items and choose options in a dialog box with standard operations—scrolling, pointing, and clicking. Here's how you would use the directory dialog box to open a document located on another disk.

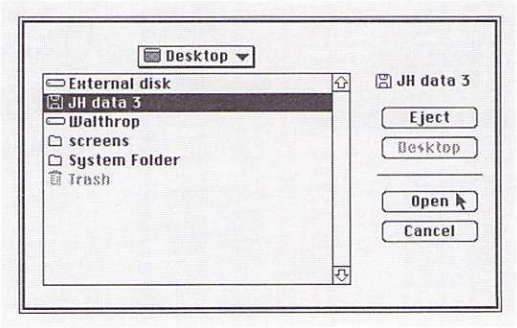


1 **Click the Desktop button to display the names of other disks (and items on the desktop).**

A new list of names appears in the box when you click Open.

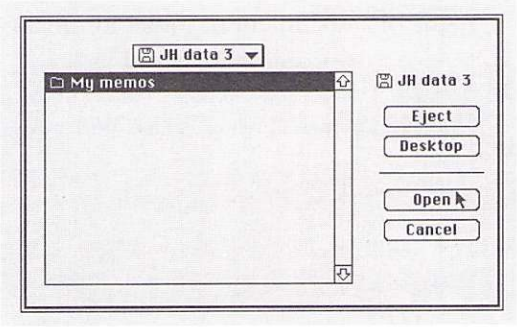


2 Scroll, if necessary, to locate the disk you want, then click the name to select it.



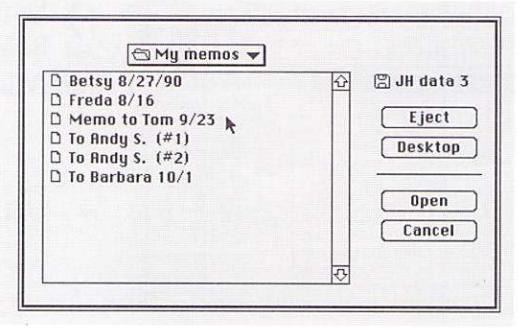
3 Click the Open button to display the items on the selected disk.

The disk's contents are displayed when you click Open.

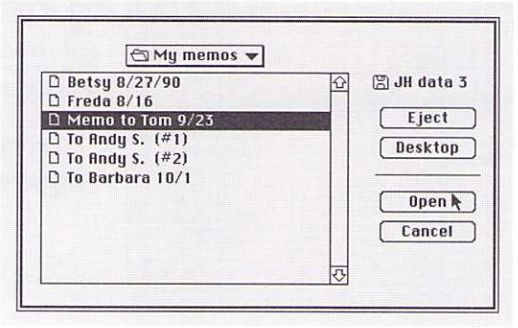


4 Click the folder you want to select, and click the Open button to open the folder.

The names of items in the folder are displayed when you click Open.



5 Click the name of the document you want.



6 Click the Open button to open the document.

The dialog box closes, and the document appears.

❖ *Another way to open a document or folder:* Double-clicking the name of a document or folder in the list opens it. ❖

➤ *See also:* "Using a Pop-Up Menu" earlier in this chapter
"Moving Through Levels of Folders With a Pop-up Menu" in Chapter 5

Using an alert box

Another type of dialog box, the *alert box,* is designed to keep you from accidentally losing some of your work or quitting an application program. Its message warns you that you may be doing something you didn't intend and asks you to confirm that you want to go ahead with the action.

Many alert boxes are accompanied by a sound to warn you of a possible mistake.

When you choose the Empty Trash command from the Special menu, you'll see an alert box like the one in Figure 1-11.

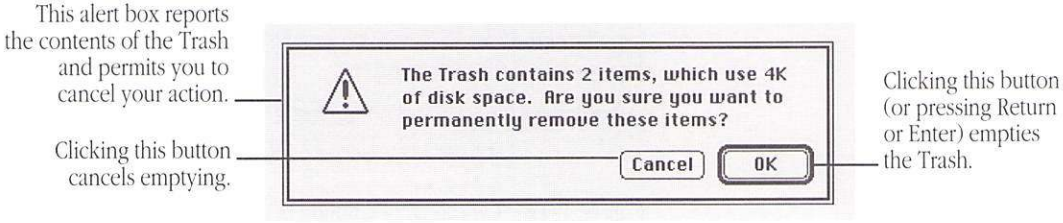


Figure 1-11 This alert box appears when you choose Empty Trash

- *Return key shortcut:* You can press Return or Enter instead of clicking the OK button. (Pressing Return or Enter is the same as clicking the button with a bold outline in any alert box or dialog box.) ❖

➤ *See also:* "Turning the Trash Warning On or Off" in Chapter 7
"Setting the Alert Sound" in Chapter 7

Getting help

The Macintosh system software has built-in explanations of most items that appear on the computer screen. Each description is displayed in a small balloon next to the item you are pointing to.

Figure 1-12 shows one of these balloons.

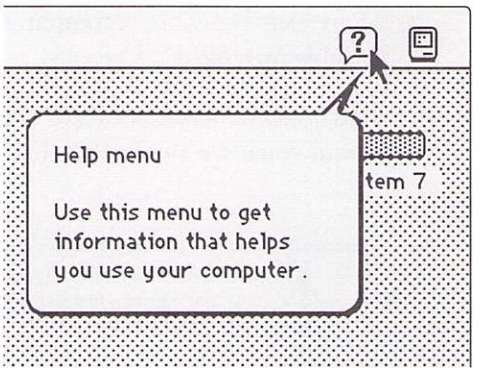


Figure 1-12 On-screen description of the Help menu

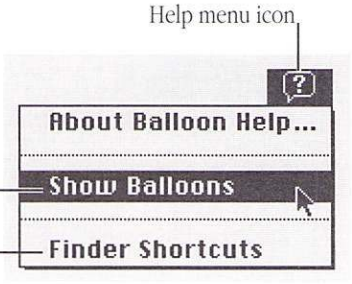
The Help menu is always available, whether you're using the Finder or an application program. You can turn on the Help information at any time, even when a dialog box is displayed on the screen. When Help balloons are turned on, you can use your Macintosh as usual—choosing menu commands, opening windows, and so on.

The Help information describes menu commands, dialog boxes, icons, and windows. Many application programs also provide information about their features and commands in Help balloons.

The Help menu also provides a summary of shortcuts you can use when working with the Finder.

Turning Balloon Help on and off

You choose the on-screen descriptions—called balloons—from the Help menu (which has a question mark icon).



To turn on descriptions, choose Show Balloons from the Help menu.

You can turn off balloons by choosing Hide Balloons from the Help menu.

Basic editing

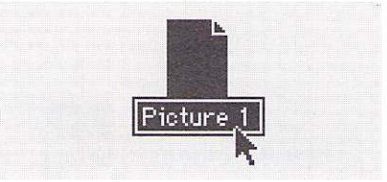
The Macintosh has a number of standard editing capabilities, which you can use with the Finder or in any application program. These built-in features allow you to change disk and document names with ease, to copy text or graphics between programs, and to save frequently used information for quick retrieval.

This section introduces the fundamental text-editing operations you can use with the Finder or in application programs.

➤ *See also:* "Editing Documents" in Chapter 3

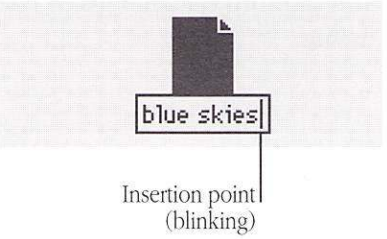
Changing all of an icon's name

You can easily change an icon's name.



1 To change an icon's name, first select the name by clicking it.

The icon's name becomes highlighted and a box appears around it. (You must click the name. Clicking the icon highlights the name but does not select it for editing.)



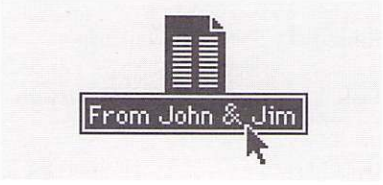
2 Type a new name for the icon, then press Return to save the new name.

When you begin typing, the new text appears in place of the old. The *insertion point*—a thin vertical line that marks the place where text will appear—blinks at the end of the text you type.

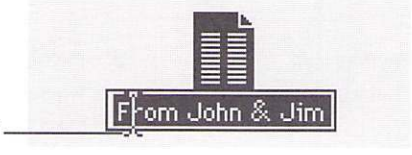
- *Another way to select an icon's name:* Selecting the icon and pressing Return selects its name. ❖
- *Another way to save an icon's name change:* Clicking anywhere outside the icon saves its new name. ❖

Selecting part of the text in an icon's name

You use dragging to select part of an icon's text. You also use dragging to select text in application programs.



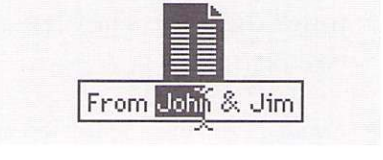
1 **To select part of the text in an icon's name, select the name by clicking it.**



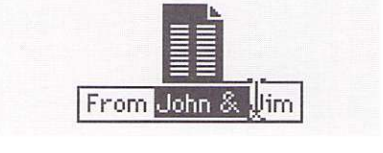
2 **Place the pointer over the icon's name.**

When you place the pointer over the name, the arrow changes to an I-beam—a vertical symbol that resembles a capital letter "I."

3 **Position the I-beam just to the left of the first character you want to select, then press the mouse button.**



4 **Drag the I-beam across the text you want to select.**



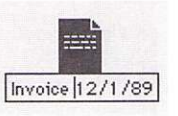
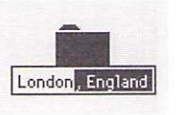
5 **Release the mouse button when the I-beam is just to the right of the last character you want to select.**

❖ *Another way to select text:* When you're editing text, you can select a word by double-clicking it. ❖

Replacing, deleting, or inserting text in an icon's name

You use variations of the technique for selecting text in an icon's name to replace or delete part of the name and to insert text in the name. Table 1-4 shows these text-editing operations.

Table 1-4 Editing an icon's name

Task	Instruction	Example
Replacing text in an icon's name	1. Select the text to be replaced. 2. Type the new text.	
Inserting text in an icon's name	1. Place the I-beam pointer at the place where text is to be inserted. 2. Click to set the insertion point. 3. Type the new text.	
Deleting text in an icon's name	1. Select the text to be deleted. 2. Press the Delete key.	

❖ *Another way to delete text:* You can also use the Cut command or the Clear command in the Edit menu to delete selected text. The Cut command removes text and places it in the computer's memory in an area called the *Clipboard,* from which it can be pasted elsewhere. The Clear command simply removes the text. ❖

➤ *See also:* "Inserting Copied Text and Images Within a Document" in Chapter 3
"Deleting Text and Images" in Chapter 3

Using control panels

You can change many of the standard settings for your Macintosh by using the *control panels.* The Macintosh system software includes a General Controls panel for a variety of settings and separate panels for the mouse, keyboard, sound, and many other components of your system.

Special control panels may be supplied with some Macintosh models; other control panels are available from independent manufacturers.

Each control panel has its own icon and can be opened like the icon for a program or a document. Figure 1-13 shows the icons of the standard control panels supplied with the Macintosh system software.

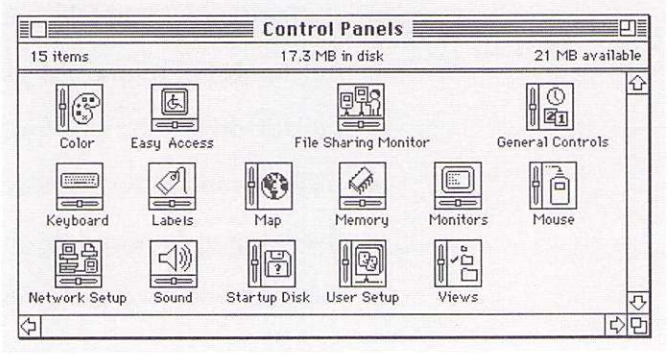


Figure 1-13 Icons of the standard control panels

- *Special control panels:* If your Macintosh has its own special control panel, refer to the *Special Options and Technical Information* booklet or other documentation that came with your Macintosh for details about using that control panel. ❖

Control panel settings

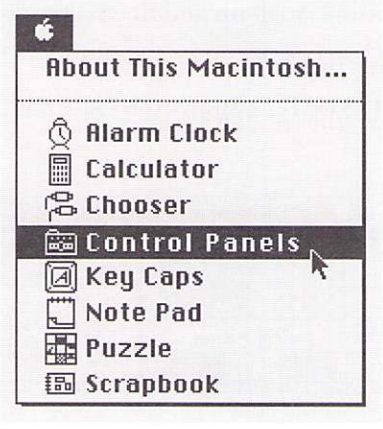
The settings you can adjust in the control panels include

- the pattern on the desktop
- how many times menu items blink when you select them
- how fast the insertion point blinks
- the date, time, and display of 12-hour or 24-hour clock
- the speaker volume
- the alert sound
- how fast a character repeats when a key is pressed
- the distance the pointer moves on screen when you move the mouse
- the positions of multiple monitors
- the number of colors or shades of gray displayed
- the disk drive to be used for startup
- the labels and colors available for icons
- the layout of icons and the font used in the Finder
- the hard disk space used to expand system memory
- special aids for using the keyboard and mouse
- file-sharing setup and program linking (available to Macintosh computers on a network)

➤ *See also:* "Basic Editing" earlier in this chapter
"Specifying Items to Be Opened at Startup" in Chapter 2
"Adjusting the Disk Cache" in Chapter 3
Appendix D, "Special Aids for Using the Mouse, Keyboard, and Screen"
"Setting Up Your Macintosh on the Network," Chapter 2 of the *Macintosh Networking Reference*

Opening a control panel

The control panels are located inside a folder named Control Panels, which is inside the System Folder. To open a control panel, follow these steps:



1 Choose Control Panels from the Apple menu.

The Control Panels folder opens.

2 Open the control panel you want to use.

Double-click the control panel's icon, or select the icon and choose Open from the File menu.

➤ *See also:* "Using an Alias for Easy Access to a File" in Chapter 5
"Customizing the Apple Menu" in Chapter 7

Changing settings in the control panels

For most control panel settings, you click a button to make a change.

A few settings, such as time and date, are adjusted by selecting one of the existing numbers (the hour or month, for example) and then using small up and down arrows to move to the desired number. (You can also type the number you want.)

Figure 1-14 shows the General Controls panel.

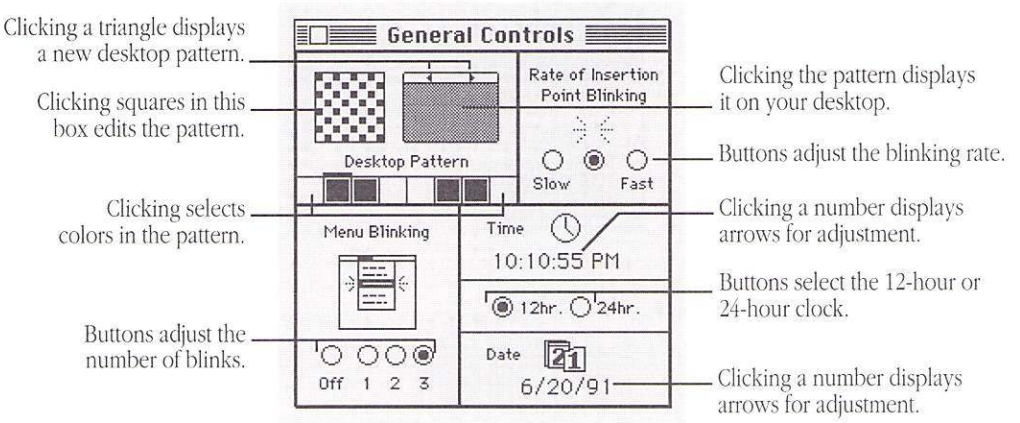
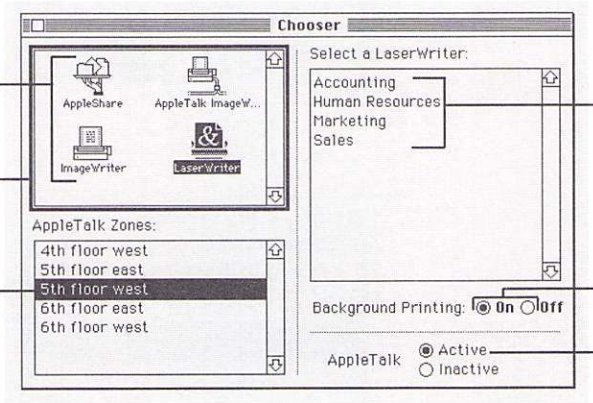


Figure 1-14 The General Controls panel

➤ *See also:* Chapter 7, "Customizing Your Macintosh"

Using the Chooser

The Chooser is a *desk accessory* (a small application program) supplied with your Macintosh. You use the Chooser to specify a printer to use. You also use it to select devices such as shared disks on a network and to adjust some printing and network settings. (See Figure 1-15.)



Types of devices available

Bold border indicates the active area

Network zones (list appears only if the Macintosh is on a network that has zones)

Names of available devices (when the type of device is selected at left)

These buttons control printing while doing other work (displayed only when the LaserWriter is the device selected).

AppleTalk must be active to use devices on an AppleTalk network.

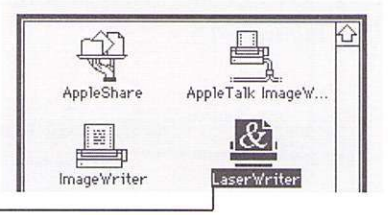
Figure 1-15 The Chooser window

The Chooser is placed in the Apple menu when you use the Installer to install the system software.

You open the Chooser by choosing it from the Apple menu.

Selecting a printer or other device in the Chooser

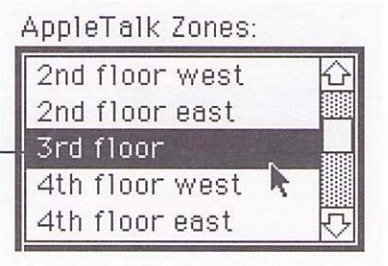
You designate a printer or other device by selecting its icon, its location (if necessary), and its name in the Chooser.



LaserWriter is the type of device selected.

1 **Select the type of device you want to use by clicking its icon in the upper-left area of the Chooser.**

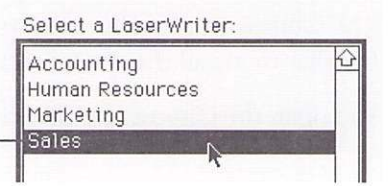
A bold border indicates which area is active.



The network zone in which a LaserWriter will be selected

2 **If your network has zones, select the zone in which the device is located by clicking its name in the lower-left area of the Chooser.**

If your network does not have zones, this list does not appear.



"Sales" is the name of the printer selected.

3 **Select the specific device you want to use by clicking its name in the list at the upper-right area of the Chooser.**

It's a good idea to close the Chooser when you're done.

Once you've selected the name of a device, such as a LaserWriter printer, your Macintosh will use that device until you select a different one with the Chooser.

- *Keyboard shortcuts for moving around in the Chooser:* You can press the Tab key to move from one section of the Chooser to another, and you can type one or more characters to move to the items in a section that begin with those characters. ❖

➤ *See also:* "Using the Keyboard to Move Around the Desktop or a Finder Window" later in this chapter
"Working With Several Open Programs" in Chapter 3
"Printing While Using the Computer for Other Work" in Chapter 4
"Turning AppleTalk On or Off," Chapter 2 of the *Macintosh Networking Reference*
"Connecting to a Shared Disk" in Chapter 3 of the *Macintosh Networking Reference*

Using special keys and indicators on the keyboard

The Macintosh keyboard resembles a typewriter keyboard, but some of its keys have special purposes. These special keys and their primary uses are summarized in Figure 1-16. (Some keyboards do not include all of these special keys and lights.)

esc	Escape key—used for special purposes in some programs		Power On key—turns on the Macintosh (some models only)
F1	Function key (on extended keyboards only)—each of these can be assigned a command with a special program	num lock / caps lock / scroll lock	Lights that are on when a locking key is engaged (on extended keyboards only)
ctrl	Control key—used in combination with other keys to give commands and modify actions		Enter key—often has the same function as the Return key
alt ⌥	Option key—used in combination with other keys to produce special characters or to give commands	←	Delete key—removes selected text or graphic
⌘	Command key—used in combination with other keys to give commands	↑ ← ↓ →	Arrow keys—move the insertion point and act as an alternative to the mouse

Figure 1-16 Special keys and indicators used on Macintosh keyboards

The location of special keys varies on the different keyboards available for use with Macintosh computers.

➤ *See also:* Appendix A, "Keyboards and Character Sets"
Appendix D, "Special Aids for Using the Mouse, Keyboard, and Screen"

Using the keyboard to move around the desktop or a Finder window

You can use certain keys to move quickly from one item to another. Table 1-5 summarizes these keyboard movements. You can use these shortcuts on the desktop, in Finder windows, in the Chooser, and in a directory dialog box.

Table 1-5 Keyboard shortcuts in the Finder, Chooser, and directory dialog boxes

Key	Action
Arrow keys	Selects the next item in the direction of the arrow
Tab key	Selects the next item alphabetically (except in a directory dialog box and the Chooser)
Character key (a, b, c...)	Selects the first item whose name begins with that character (or the character closest to it in the alphabet)
⌘–Down Arrow	Opens the selected icon
⌘-Option–Down Arrow	Opens the selected icon and closes the current folder
⌘–Up Arrow	Opens the folder that contains the current folder
⌘-Option–Up Arrow	Opens the folder that contains the current folder and closes the current folder
Return or Enter	Selects the selected icon's name for editing or saves the edited name (except in a directory dialog box)

➤ *See also:* Appendix A, "Keyboards and Character Sets"

Turning the Macintosh on and off

All models of the Macintosh computer (except the Macintosh Portable) have a power switch on the back of the case. The location of the switch varies among the different models, however, and the switch is not the recommended method for turning some models on and off.

Locating the power switch

On compact models, such as the Macintosh Classic and the Macintosh SE/30, the power switch is located at the right rear side of the computer. (See Figure 1-17.)

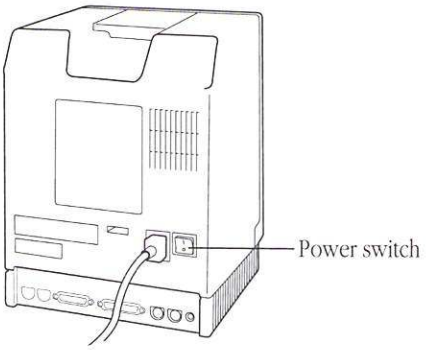


Figure 1-17 The power switch on the Macintosh SE/30

On models that have a separate monitor, such as the Macintosh II family and Macintosh LC, the power switch is located on the left rear side of the computer. (See Figure 1-18.)

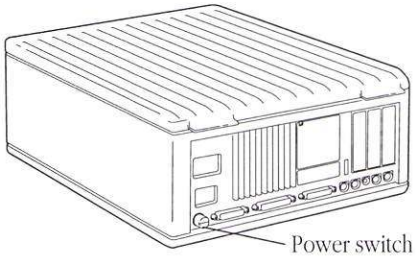


Figure 1-18 Power switch on the Macintosh IIci

Turning on a compact Macintosh or Macintosh LC

You turn on a compact Macintosh or a Macintosh LC with the power switch.

- *Turning on an external hard disk drive:* If your system has an external hard disk drive, you should turn on the external drive before you turn on the Macintosh. Otherwise, the Macintosh may not recognize the external drive.

➤ *See also:* Chapter 10, "Troubleshooting"

Turning on a Macintosh II–family computer

The recommended way to turn on a Macintosh II computer is by pressing the Power On key on the keyboard. This key is located at the top of the keyboard and has a triangle symbol on it. (See Figure 1-19.)

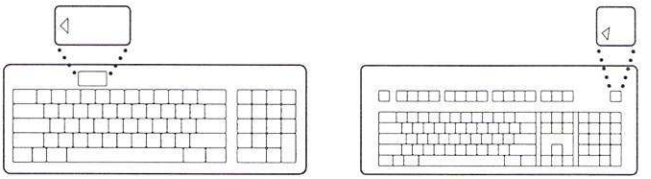


Figure 1-19 The Power On keys on two kinds of Macintosh keyboards

If the Power On key doesn't work, you can use the power switch on the back of the computer to turn on the computer.

- *Turning on an external hard disk drive:* If your system has an external hard disk drive, you should turn on the external drive before you turn on the Macintosh. Otherwise, the Macintosh may not recognize the external drive.

➤ *See also:* Chapter 10, "Troubleshooting"
Appendix A, "Keyboards and Character Sets"

Turning off the Macintosh

The recommended way to turn off all Macintosh computers is to choose the Shut Down command from the Special menu. This command prepares all files and disks in use for shutdown.

The Shut Down command turns off the power in some models of the Macintosh. In compact models, this command prepares the system for shutdown and then displays a message telling you it's safe to turn off the computer's power switch.

➤ *See also:* "Shutting Down the Computer" in Chapter 3

2

Starting Up

Setting up your computer involves two tasks: assembling the hardware components and preparing the system software, which the Macintosh uses for its basic operations.

This chapter provides instructions for preparing the system software to work efficiently with all parts of your Macintosh system.

Preparing the Macintosh hardware

The steps you need to follow in setting up your Macintosh hardware depend on which model of computer you have. The setup guide that came with your computer provides detailed instructions for putting the system together.

If you set up the Macintosh and the computer or monitor does not turn on, see Chapter 10, "Troubleshooting," for assistance.

Preparing your system software

The system software manages Macintosh operations. It transmits information to and from disks, printers, and other devices, establishes and keeps track of files, and directs processing inside the computer. Most system software activity is invisible, but application programs—the software you use for word processing, spreadsheets, and other specialized work—rest on the foundation system software provides.

❖ *Is your system software already installed?* If you purchased a Macintosh with an internal hard disk drive, the system software probably was installed for you. You'll recognize a ready-to-run Macintosh when you turn it on; after a few seconds you'll see a "happy Macintosh" icon (see Figure 2-1), then the desktop will appear on the screen, with icons for the hard disk and the Trash. You can skip the installation procedure if your Macintosh shows the desktop and these icons. ❖

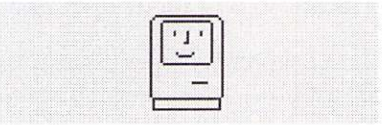


Figure 2-1 The "happy Macintosh" icon displayed at startup

▲ **Warning:** If you purchased a hard disk with the A/UX operating system installed on it, do not initialize that disk; doing so will erase A/UX. Instead, see the A/UX documentation for instructions on installing system software. ▲

You prepare the system software for your Macintosh by installing it on a disk. That disk then becomes a *startup disk.* A startup disk is any hard disk or floppy disk that contains the system software necessary to use your Macintosh computer and the devices connected to it.

Installing system software creates a System Folder on the disk. This special folder contains the *system files, drivers,* and other kinds of resources your Macintosh needs. Figure 2-2 shows the icons for a System Folder, a system file, and a printer driver.

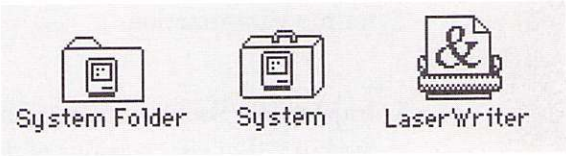


Figure 2-2 Icons for the System Folder, the System file, and the LaserWriter driver

➤ *See also:* "Using Folders Inside the System Folder" in Chapter 5

Installing system software

You use a program named Installer to prepare the system software for your Macintosh. You also use the Installer to update your system with a new version of system software.

To install the system software, you will need an initialized hard disk and the set of Macintosh system software disks supplied with your computer or system software upgrade kit. The number of disks varies, according to whether they are 1.4 MB (high-density disks) or 800K disks. One disk in each set is named *Install 1*.

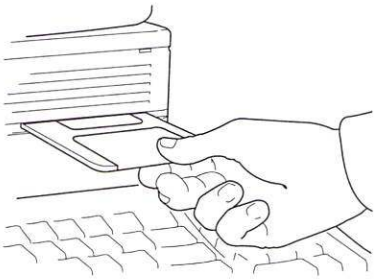
If your Macintosh is part of a network, you may be able to install system software over the network. Ask your network administrator for more information.

△ **Important:** Your computer system must have a hard disk to use System 7.0 or later versions of the Macintosh system software effectively. △

The Installer provides two options—Easy Install and Customize. These instructions cover the Easy Install process, which is suitable for most Macintosh users. (To learn more about the Customize option, see "Installing System Software for Special Needs" later in this chapter.)

When you start the Installer, the software determines which model of the Macintosh computer you are using and prepares to install the standard software for that model.

You begin the installation procedure with your Macintosh turned off.

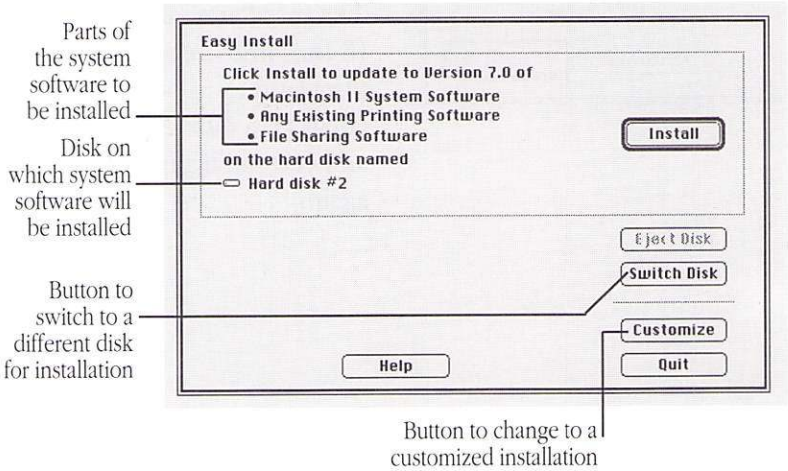


1 **To install the system software, put the *Install 1* disk into the internal floppy disk drive, and turn on the computer.**

If your Macintosh has two floppy disk drives, you can use either one.

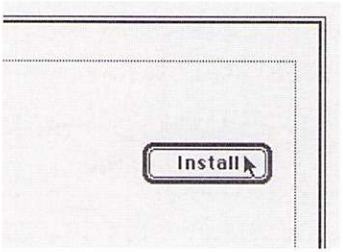
2 **Click OK once you've read the Welcome box.**

The Easy Install dialog box appears.



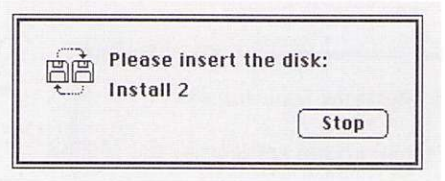
3 **Make sure that the disk named on the screen is the one you want to install on.**

If the wrong disk name appears, click the Switch Disk button until the correct disk name appears.



4 Click Install.

The Installer begins to install the system software for your Macintosh model. On-screen messages list the disks needed and report copying status.

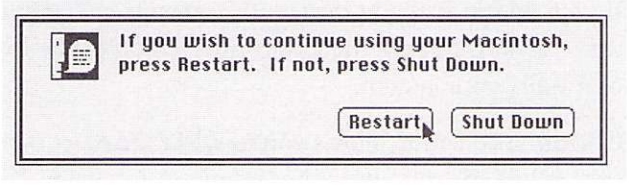


5 When the *Install 1* disk is ejected and you see a message to insert a different disk, insert the disk specified. Repeat this process as necessary.

You'll probably have to switch disks more than once.

6 When you see a message reporting that the installation was successful, click Quit.

The Installer window closes. (If for some reason the installation was not successful, you'll see a different message, and you can begin installation again.)



7 Click Restart in the dialog box that appears when you quit the Installer.

The Macintosh restarts with the newly installed system. (If you installed system software on a disk other than your current startup disk, you'll have to designate that disk as the startup disk, and then restart again.)

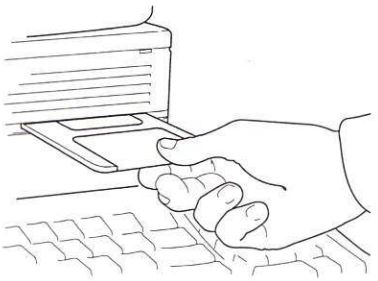
➤ *See also:* "Starting Up With a Floppy Disk for Troubleshooting" later in this chapter
"Installing System Software Over a Network" later in this chapter
"Working With Desk Accessories" in Chapter 3
"Working With Fonts" in Chapter 4
"Designating a Startup Disk" in Chapter 6
"Preparing a New Hard Disk" in Chapter 6

Installing system software for special needs

If your Macintosh uses devices that are not included in the standard software, you can use the Customize option of the Installer to install or modify your system.

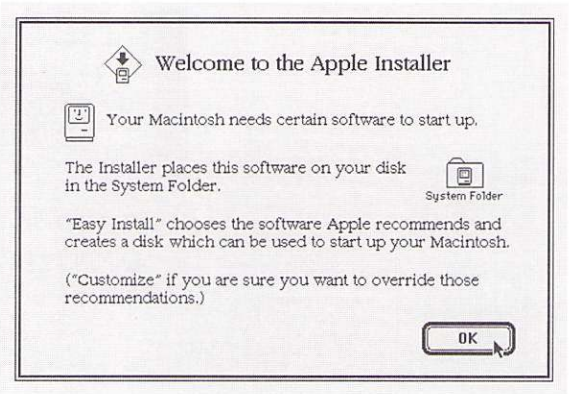
Custom installation allows you to select the exact combination of system files, drivers, and other resources you want. You can use this process for initial installation, for updating to a new version of system software, for installing a single special resource, or for saving space on your startup disk by eliminating software that isn't essential.

You begin the installation procedure with your Macintosh turned off.



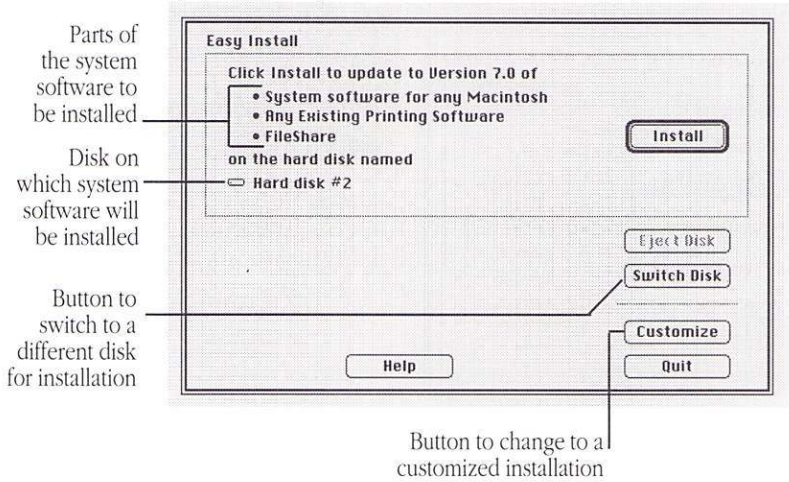
1 To install customized system software, put the *Install 1* disk into an internal disk drive, and turn on the computer.

If your Macintosh has two floppy drives, you can use either one.



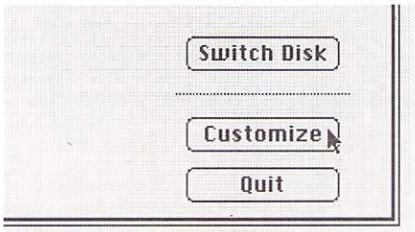
2 Click OK to remove the Welcome box.

The Easy Install dialog box appears.



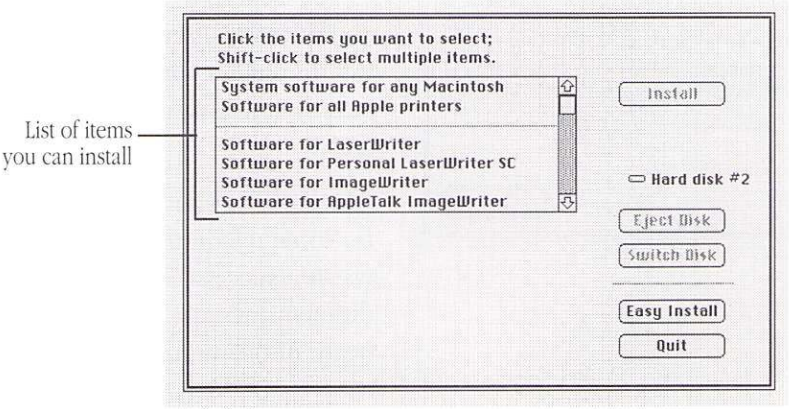
3 Make sure that the disk named on the screen is the one you want to install on.

If the wrong disk is named, click the Switch Disk button until the correct disk name appears.



4 Click Customize.

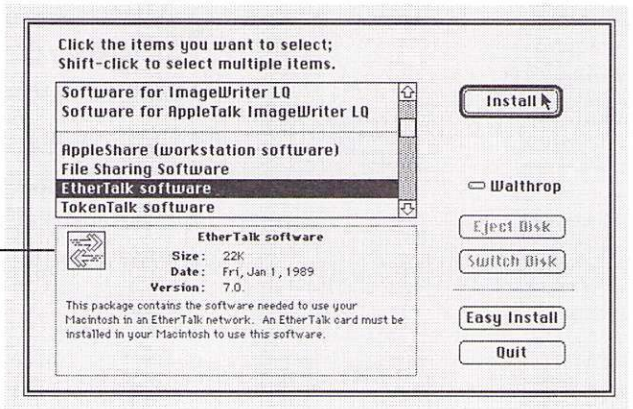
The custom installation box appears. All parts of the system software are listed, and you have a choice of standard or minimal system files for each model of the Macintosh computer.



5 Scroll through the list of items and Shift-click the ones you want to install.

As you select items, their names appear in the lower portion of the dialog box. (If you select only one item, details about it appear.)

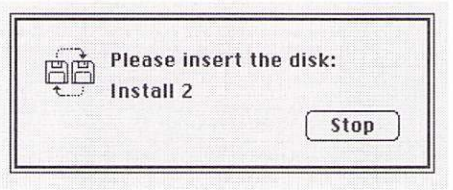
▶



Information about the item selected. When multiple items are selected, a list appears here.

6 Click the Install button to install the selected items.

The installation begins. On-screen messages report status.



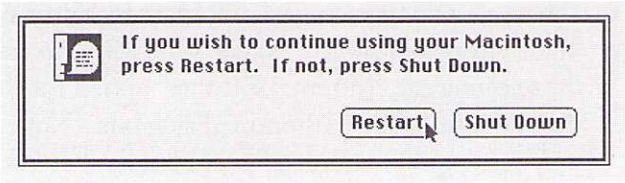
7 If the *Install 1* disk is ejected and you see a message to insert a different disk, insert the specified disk. Repeat this process as necessary.

You may be asked to switch disks more than once.

Clicking the Stop button cancels the installation.

8 When you see a message reporting that installation was successful, click Quit.

The Installer window closes. (If for some reason the installation was not successful, you'll see a different message, and you can begin installation again.)



9 Click Restart in the dialog box that appears when you quit the Installer.

The Macintosh restarts with the newly installed system. (If you installed system software on a disk other than the startup disk, you'll have to designate that disk as the startup disk, and then restart again.)

➤ *See also:* "Working With Desk Accessories" in Chapter 3
"Working With Fonts" in Chapter 4
"Designating a Startup Disk" in Chapter 6

Installing system software over a network

If your Macintosh is part of a network system, you can install system software that's stored on a shared disk (a file server or a Macintosh that contains shared files).

Once you've connected to the shared disk that contains the Installer and the system software files, you start the Installer by double-clicking its icon. Then you follow steps 2 through 7 in "Installing System Software" or steps 2 through 9 in "Installing System Software for Special Needs" earlier in this chapter. When installing over a network you don't have to use floppy disks.

Conserving disk space with a minimal system

There are two ways to save disk space by eliminating unnecessary items from your System Folder. One way is to create a small system by selecting the "Minimal software" option for your Macintosh from the Installer's Customize dialog box. (Note that the "Minimal software" option creates a System Folder that works only with your model of Macintosh computer.)

If you did not install the minimal system, or if you've added drivers, fonts, or desk accessories since installation, the second way to save space is to remove items that aren't essential. You remove drivers and desk accessories by dragging them out of the System Folder or one of the folders located inside the System Folder. You remove fonts, sounds, and keyboard files from the System file, which is inside the System Folder. You need to erase these items to free the space they occupied on your hard disk. (Be sure to save copies on backup disks.)

Depending on the devices connected to your Macintosh, you should consider removing the following items if you want to create more room on your disk:

- drivers for printers or other devices you don't use (such as an ImageWriter™, AppleTalk ImageWriter, or LaserWriter printer)
- networking drivers, if you are not on a network (such as AppleShare™ software)
- extra desk accessories (you may not need the Alarm Clock, Calculator, Key Caps, Note Pad, Puzzle, or Scrapbook)
- extra fonts, sounds, or keyboard files

➤ *See also:* "Installing System Software for Special Needs" earlier in this chapter
"Working With Desk Accessories" in Chapter 3
"Working With Fonts" in Chapter 4
"Using Folders Inside the System Folder" in Chapter 5

Starting up with a floppy disk for troubleshooting

Although you can't create a version of System 7 small enough to work effectively on a floppy disk, you can start up with the disk labeled *Disk Tools* in the internal floppy disk drive if for some reason you're unable to use your hard disk. This disk contains a System Folder with an earlier version of the system software.

You can use the Installer to install System 7 on a high-density (1.4 MB) floppy disk. This is recommended for temporary use only.

➤ *See also:* Chapter 10, "Troubleshooting"

Updating to a new version of system software

If you have been using an older version of the system software and you get a newer version, you can update your system by using the Installer.

When you use the Installer to update your system, you retain the special fonts, sounds, and drivers you've installed. (If you simply throw away your current System Folder and replace it with the newer one, you lose these special items.)

To install the new system software, follow the instructions in "Installing System Software" or "Installing System Software for Special Needs" earlier in this chapter.

➤ *See also:* "Updating Printer Drivers for Macintosh Computers Using System 7 and System 6 on a Network" in Appendix B

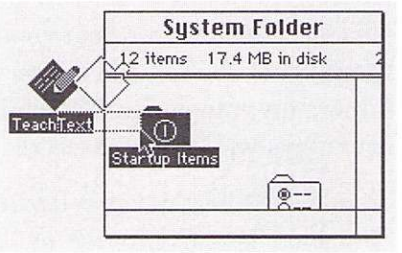
Specifying items to be opened at startup

You can designate one or more application programs, desk accessories, and documents to be opened automatically when you start up the Macintosh.

Placing items in the Startup Items folder

To specify items you want to open at startup, you place their icons in the Startup Items folder, which is inside the System Folder.

1 **Open the System Folder by double-clicking its icon.**



2 **Locate the Startup Items folder and drag the item you want opened at startup to its icon.**

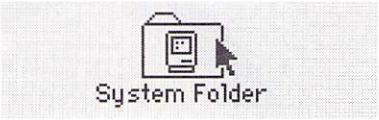
The item will be opened the next time you start up the Macintosh.

- *Using an alias in the Startup Items folder:* You can also designate an item to open at startup by making an alias (a substitute file) for the item and placing the alias in the Startup Items folder. ❖

➤ *See also:* "Putting a Program or its Alias in the Apple Menu" in Chapter 3
"Using an Alias for Easy Access to a File" in Chapter 5

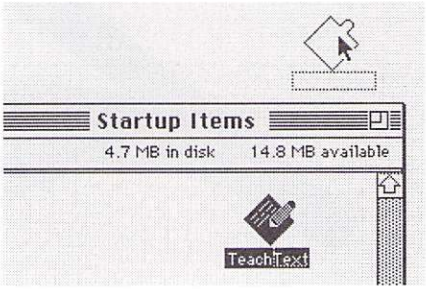
Removing items from the Startup Items folder

If items are opening at startup that you don't want opened, you can remove them from the Startup Items folder (which is inside the System Folder).



1 **Open the System Folder by double-clicking its icon.**

2 **Locate the Startup Items folder, then double-click to open it.**



3 **Select the items you want to remove and drag them to the folder where you want to store them.**

Be sure to drag the icons out of both the Startup Items folder and the System Folder. If you leave them in the System Folder, they may still open at startup.

The next time you start up or restart the Macintosh, the items you removed from the Startup Items folder will not be opened.

➤ *See also:* "Putting a Program or its Alias in the Apple Menu" in Chapter 3
"Working With Several Open Programs" in Chapter 3
"Managing System Memory" in Chapter 3

3

Working With Application Programs

Application programs determine what kinds of work you can do with a Macintosh—such as writing, drawing, designing, calculating, controlling a variety of processes, and managing vast amounts of information.

This chapter outlines some fundamental operations common to all application programs, regardless of the program's specific purpose and product.

These operations include

- preparing to use an application program
- moving text and images within a document
- copying text and images from one document to another
- saving documents—under various names, in various locations
- storing frequently used text and images for easy access
- recognizing whether you're in an application program or in the Finder and moving from one place to the other

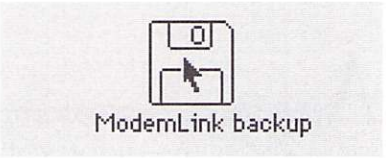
This chapter also shows you how to manage several application programs at once and summarizes the appropriate steps for ending a work session.

Preparing to use a program

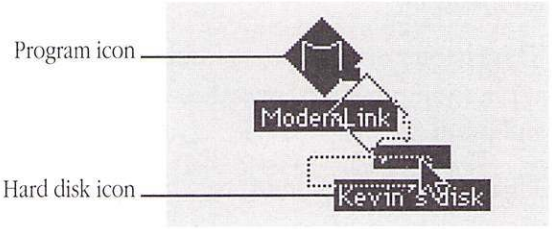
You use standard Macintosh operations to install and start most programs, and to create documents with them. Once you've created a document with a program, you can either start the program and then open the document, or you can simply open the document icon, which automatically starts the program.

Installing a program

You can install many application programs simply by copying them from the original disk to your hard disk. (Some programs have more elaborate installation procedures. Check the documentation that came with your program for any special instructions.)

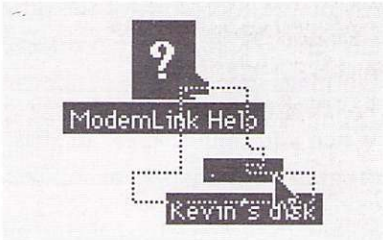


1 Open the program's disk by double-clicking its icon.



2 Copy the program by dragging its icon to your hard disk.

You can also copy a program to a folder (by dragging its icon to the folder icon) or to an open window (by dragging its icon to the window).



3 If necessary, copy any additional files the program needs by dragging their icons to the hard disk.

The documentation should specify whether any such files—a help file or a dictionary, for example—are needed and whether they need to be put in a special place, such as the System Folder.

It's a good idea to open the icon of the hard disk to make sure that the program and other files were copied.

➤ *See also:* "Installing System Software" in Chapter 2

Creating an alias for a program

You can make an alias for an application program to give you quick access to the program from any location. For example, you may have stored the program in a folder with documents created by that program, or a program may need to be in a special folder with related files. You can put the alias on the desktop where it's always available without opening any folders. Or you can put the alias in the Apple menu.

An alias is essentially a representative of the original program or document that you can use as if it were the original. It has the same icon as the original but the name appears in italics. (See Figure 3-1.)

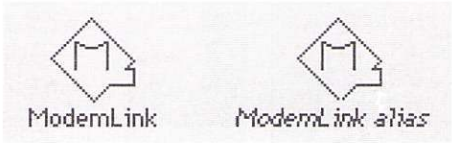


Figure 3-1 The original and an alias for a program

An alias is not a copy of the program or document; it is a tiny file (about 1–2K in size) that directs the computer to the original. You can make any number of aliases for an original file.

When you double-click an alias, the alias locates the original program and the original opens.

Follow these steps to make an alias:

1 Select the program or document by clicking its icon.

2 Choose Make Alias from the File menu.

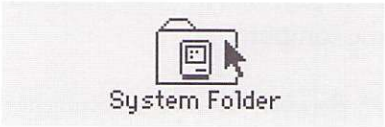
The alias appears next to the original program or document. It has the same name as the original, followed by the word "alias." (You can change the name if you wish.)

➤ *See also:* "Using an Alias for Easy Access to a File" in Chapter 5

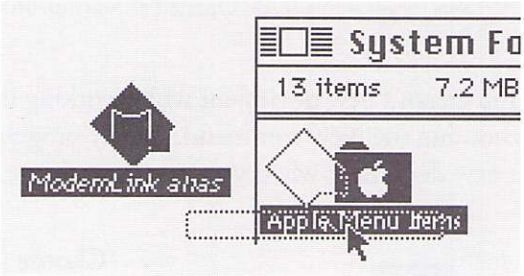
Putting a program or its alias in the Apple menu

You can get easy access to any program, document, disk, or shared disk by putting it (or an alias for it) in the Apple menu. Then you simply choose the item's name from the Apple menu whenever you want to use that item.

To add an item to the Apple menu, you place its icon in the Apple Menu Items folder, which is inside the System Folder.



1 Double-click the icon of the System Folder to open it.



2 Drag the icon of the program or its alias into the Apple Menu Items folder inside the System Folder.

The item appears immediately in the Apple menu.

You remove a program or document from the Apple menu by opening the Apple Menu Items folder and dragging the item out of the folder. The name disappears from the Apple menu after you remove the icon from the Apple Menu Items folder.

➤ *See also:* "Specifying Items to Be Opened at Startup" in Chapter 2

Starting a program

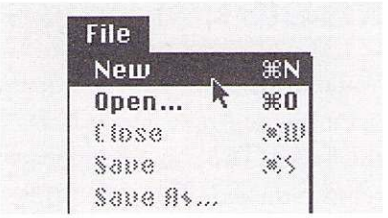
You start a program by opening it. You can double-click the program's icon or select the icon and choose Open from the File menu. You can also open a program by double-clicking a document created by the program, or by dragging the document to the program icon.

The program remains open until you quit, usually by choosing Quit from the File menu (or by using the keyboard shortcut ⌘-Q provided in many programs), or until you shut down or restart the computer.

➤ *See also:* "Opening a Document While Using the Finder" later in this chapter
"Finding Out What Programs Are Open" later in this chapter
"Specifying Items to Be Opened at Startup" in Chapter 2

Creating a new document in a program

You create a new document while working in a program by choosing the New command. (Many programs automatically open a new document when you start them.)

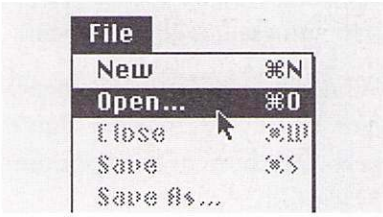


Choose New from the File menu.

If another document was already open, the new one covers it. (Some programs don't permit more than one open document at a time.)

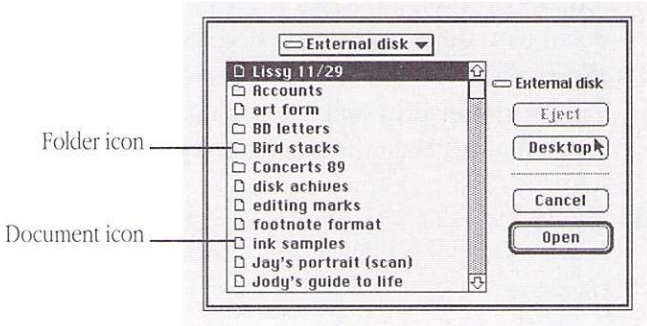
Opening an existing document in a program

You open an existing document while working in a program by using the Open command.



1 Choose Open from the File menu.

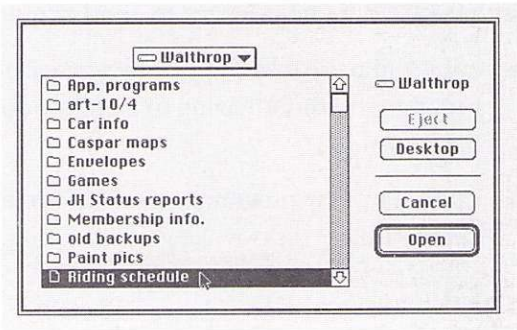
The program's directory dialog box appears. This box contains a list of documents the program can open and folders on the disk you're using.



2 Locate the folder or disk that contains your document, and double-click to open it.

If the document is on another disk, click the Desktop button to see the available disks (and click Eject if you need to switch to a different floppy disk).

If the document is stored inside several folders, you need to open each folder in turn from the list.



3 Double-click the document to open it.

You can also select a name in the list and click the Open button to open it.

➤ *See also:* "Finding Out What Programs Are Open" later in this chapter

Opening a document while using the Finder

If you are using the Finder rather than working in an application program, you can open a document (and start the program at the same time) by double-clicking its icon or by selecting the icon and choosing Open from the File menu. (This technique may not work if the program is already open.)

When you close any document, the program stays open until you quit, usually by choosing Quit from the File menu (or by using the keyboard shortcut ⌘-Q), or until you shut down or restart the Macintosh.

❖ *Another way to open documents:* You can also drag a document icon to the program icon (make sure that the tip of the pointer touches the program icon). If the program can open that document, the program icon becomes highlighted. When you release the mouse button, the program opens the document. This method works well if you want to open a document with a program other than the one that created it. ❖

➤ *See also:* "Working With Several Open Programs" (next section)
"Using a Directory Dialog Box" in Chapter 1

Working with several open programs

The Macintosh system software lets you keep several programs and desk accessories open at the same time.

This means you can

- switch from one program to another quickly and easily
- copy and paste text and graphics between documents in different programs, without having to close the documents or quit the programs
- easily start new programs, move or delete documents, and change floppy disks while you're working

All open programs are listed in the Application menu, which always appears at the far right side of the menu bar. The names of the open programs are listed in this menu, and the icon of the program currently in use appears in the menu bar. (See Figure 3-2.)

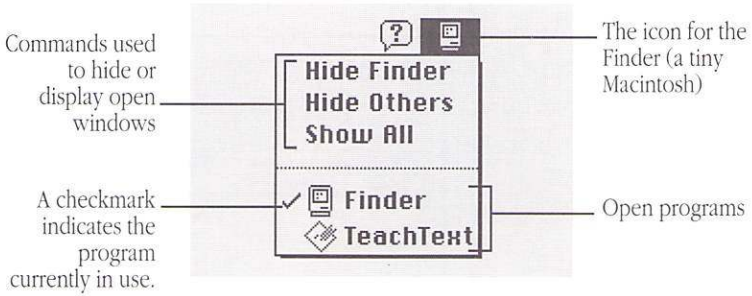


Figure 3-2 The Application menu at the right side of the menu bar

Each time you open a new program or desk accessory, its name and icon are added to the Application menu. The other programs already open remain open (and their names and icons remain in the Application menu).

To use multiple programs most efficiently, you should also know something about your system's memory, discussed later in this chapter.

➤ *See also:* "Managing System Memory" later in this chapter
"Specifying Items to Be Opened at Startup" in Chapter 2

Switching programs

You switch among open programs or desk accessories by choosing their names from the Application menu in the right corner of the menu bar. (See Figure 3-3.)

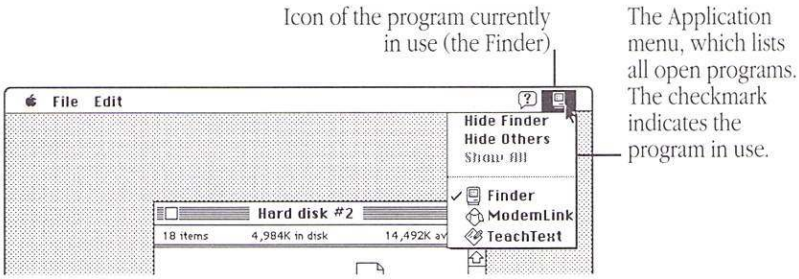
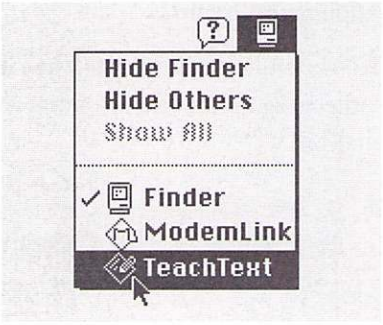


Figure 3-3 Menu bar with the Application menu pulled down

If a program's icon is dimmed in the menu, that means its windows are hidden. You can choose it from the Application menu to display its windows again.



Choose the name of the program you want from the Application menu.

- *Other ways to switch programs:* You can also click in a document window or double-click a program or document icon to switch programs. (If a program is already open, its icon is dimmed.)

Starting a program when other programs are open

You start a program that is not currently open by locating its icon and opening it.

Locate the icon of the program you want and open it by double-clicking.

If the icon you want is on the desktop and is hidden, you can hide or resize windows to get to the icon.

You'll see an alert box if there is not enough memory for the new program to be opened. (See Figure 3-4.)

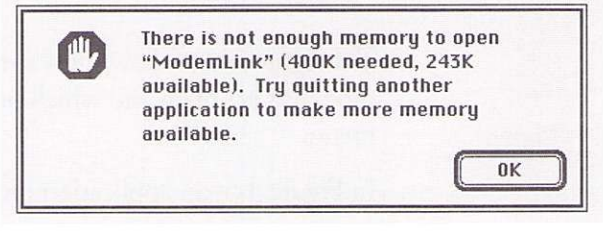


Figure 3-4 Alert box reporting insufficient memory

If you see this message or a similar one reporting that the program can be opened but may run inefficiently, quit one of the open programs and try opening the one you want again. You can check the Application menu to see which programs are open.

➤ *See also:* "Hiding and Showing Windows on the Desktop" later in this chapter
"Managing System Memory" later in this chapter

Returning to the Finder from an application program

To return to the Finder when you're using an application program, simply click any object on the desktop (outside the open windows) or choose the Finder from the Application menu at the far right side of the menu bar. When you do this, the active window becomes inactive and the Macintosh icon appears in the upper-right corner of the menu bar, indicating that you're using the Finder. The menus on the menu bar also change.

Finding out what programs are open

If you have several programs and windows open, you can quickly find out which program is active and what other programs are open by pulling down the Application menu (at the right side of the menu bar).

The Application menu also contains three commands to let you hide the windows of one or more programs or show all open windows.

The figures that follow show some easy ways to determine which programs are open and which one is active, using the Application menu.

In Figure 3-5, an application program is open, but no document is open.

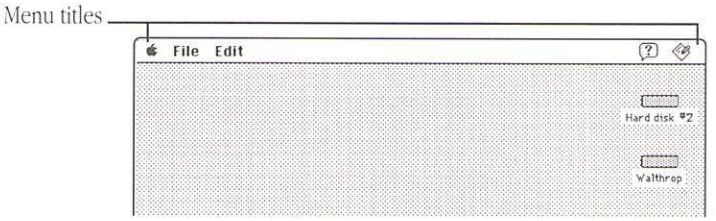


Figure 3-5 The menu bar is showing on the screen but no windows are open

Figure 3-6 shows how to determine where you are.

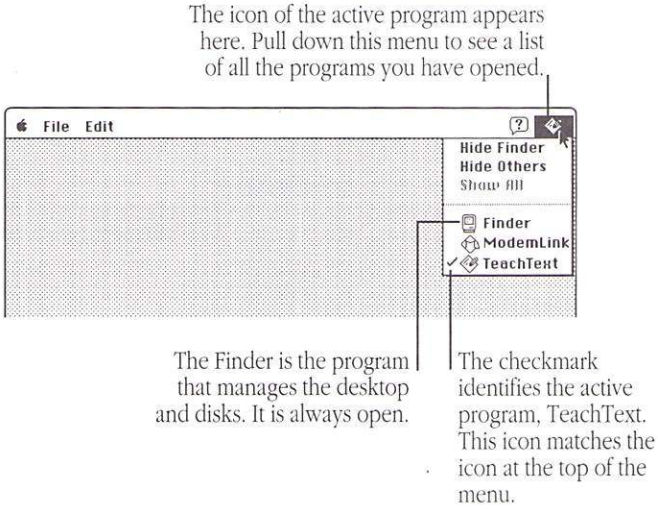


Figure 3-6 The Application menu shows what program you're using

Figure 3-7 shows several open windows.

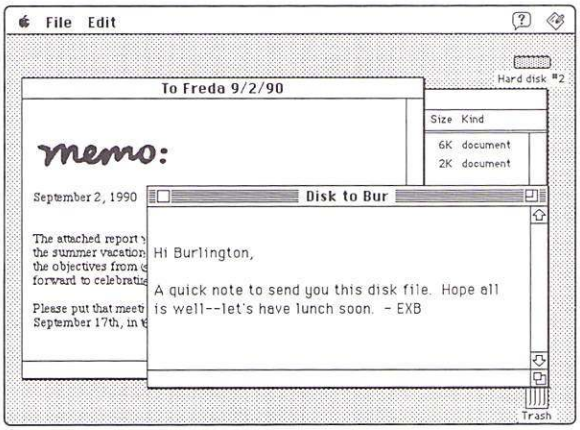


Figure 3-7 Screen with several windows open

Figure 3-8 shows how to see where you are and to figure out what else is open.

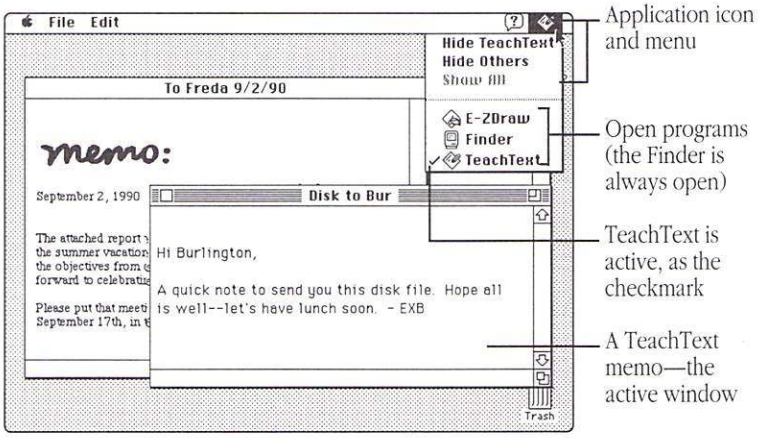


Figure 3-8 The Application menu shows all open programs

You can click any window to make its program active.

Hiding and showing windows on the desktop

You can hide all the open windows except those of the program you're currently using by choosing a command in the Application menu. (This is useful if you're getting confused by too many windows on the screen or if you want to get to an item on the desktop.)

Figure 3-9 shows an example of the Hide Others command, which you use to hide windows belonging to programs other than the active one.

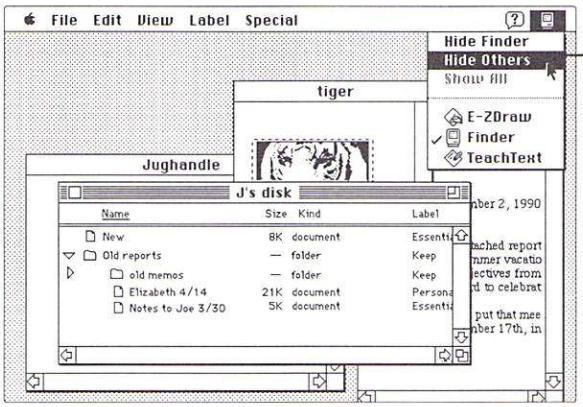


Figure 3-9 The screen with several windows open

When the command takes effect, the open windows are hidden, and the disk icons that were covered by the windows are visible. (See Figure 3-10.)

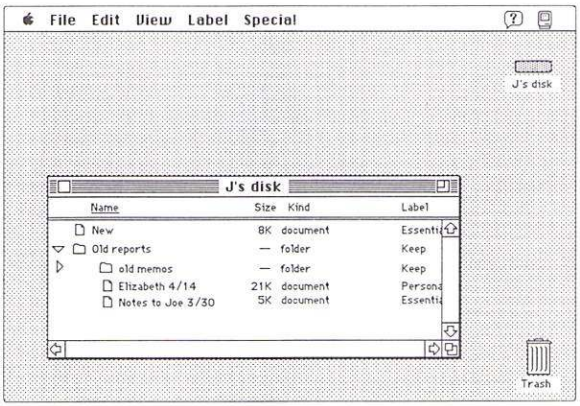


Figure 3-10 Only the Finder's window is now open

The windows remain hidden until you switch to another open program, at which time its open windows are again displayed.

- *Another way to hide windows:* Choosing the first command in the menu (Hide Finder in Figure 3-9) hides the windows of the program that's currently active. ❖

➤ *See also:* "Switching Programs" earlier in this chapter

Editing documents

The Macintosh computer has standard operations built in that allow you to edit text and to copy both text and images from one part of a document to another, from one document to another, and from one program to another.

Editing text

You can use the standard text-editing operations whether you're in the Finder or using an application program. These include

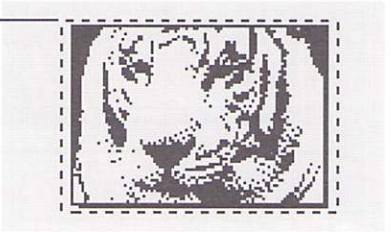
- selecting text
- replacing text
- inserting text
- deleting text

You may want to review the instructions in "Basic Editing" in Chapter 1 for basic text editing.

Copying text and images

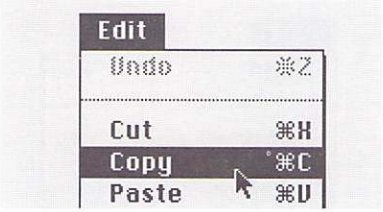
You can easily copy selected text and images.

In many graphics programs a selected item has a moving dashed outline. (Other programs use knobs, or "handles," at the corners.)



1 Click or drag to select the item you want to copy.

The program's documentation will tell you the method to use.



2 Choose Copy from the Edit menu.

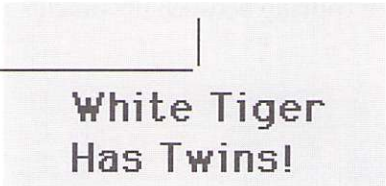
Your selection is copied and stored in a part of the computer's memory called the Clipboard; it remains there until you copy or cut another item or you turn off the computer.

- *Keyboard shortcut for copying:* You can also use the keyboard shortcut ⌘-C to copy selected items. ❖
- *To check the Clipboard:* You can see the current contents of the Clipboard by choosing the Show Clipboard command from the Edit menu. This command is available in some programs, and it's always available when you're working with the Finder. (Some kinds of information may not be visible, however.) ❖

➤ *See also:* "Deleting Text and Images" in Chapter 3

Inserting copied text and images within a document

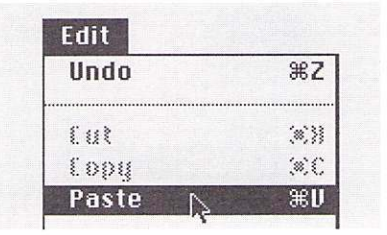
Once you've copied text, images, or both, you can insert that material in another open document. The document into which you want to copy an item must be able to accept that item; not all programs produce compatible information.



1 Click at the exact spot where you want the item to appear.

In many programs, a blinking insertion point appears at the spot where you click.

▶



2 Choose Paste from the Edit menu.

The item you copied previously is inserted.

3 Check the document to make sure that the copied item was inserted as you want it.

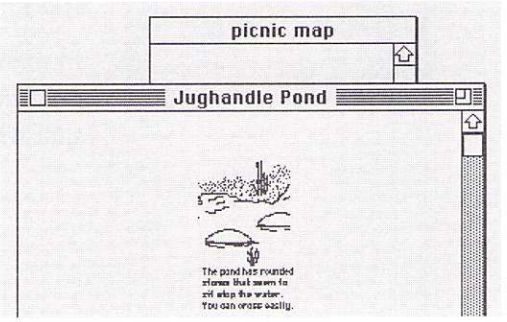
In some graphics programs, you need to position the item after you've pasted it.

The copied item remains on the Clipboard; you can paste it as many times as you wish.

❖ *Keyboard shortcut for pasting:* You can also use the keyboard shortcut ⌘-V to paste copied material into a document. ❖

Copying text and images between different programs

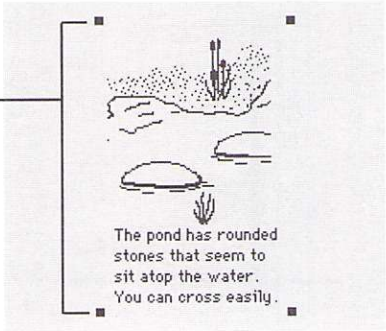
You can easily copy text and images from one document to another or from one program to another, if the two programs produce compatible information. The instructions that follow cover the task of copying between documents in two different programs.



1 Open both documents to prepare for copying and inserting.

If your system doesn't have enough memory to have both documents open at once, open the *source document*—the one from which you want to copy.

Handles at corners indicate a selection in some graphics programs.

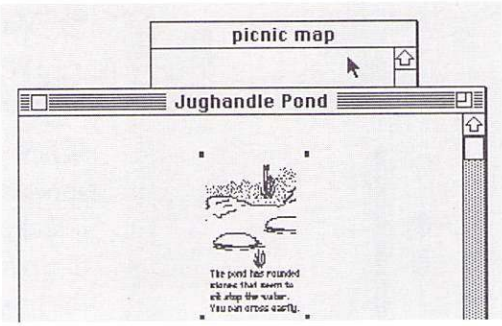


2 Click the window of the source document to make it active, and select the material to be copied.

In a graphics program, a selection is often marked by handles or a moving dashed outline; in a text program, a selection is highlighted.

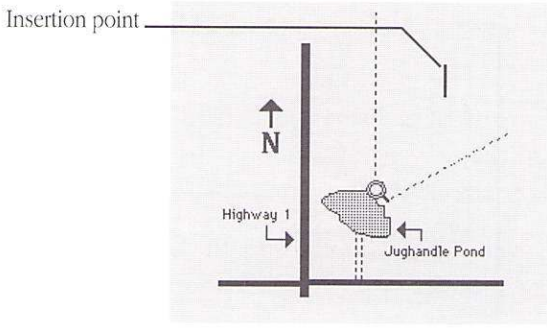
3 Choose Copy from the Edit menu.

The selection is copied to the Clipboard.



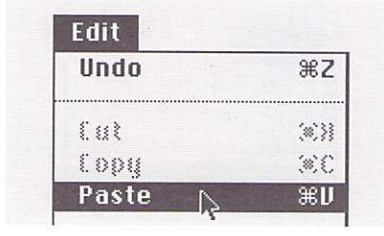
4 Click anywhere in the window of the document in which you want to paste the material.

If that window is not open, double-click the icon of that document—the *destination document*—to open it. You may need to quit the program from which you copied material.



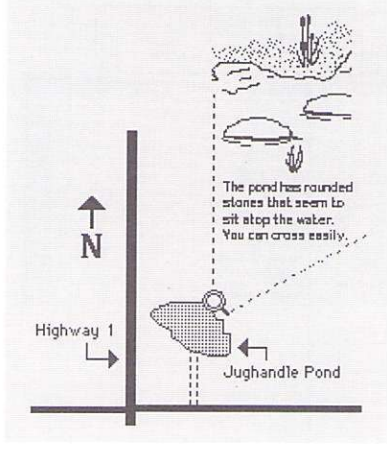
5 Click at the exact spot where you want the item to appear.

In many programs, a blinking insertion point appears at the spot where you clicked.



6 Choose Paste from the Edit menu.

The selected item appears at the insertion point or the spot where you clicked.



7 Make sure that the copied material was pasted where you want it.

When you paste something, it appears selected. You can delete it and paste it again, or drag it to a new location, depending on the program you're using.

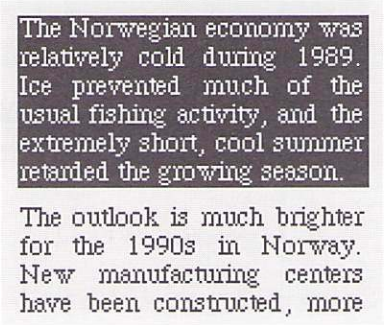
➤ *See also:* "Updating Documents Automatically With Publish and Subscribe" later in this chapter
"Switching Programs" earlier in this chapter
"Starting a Program When Other Programs Are Open" earlier in this chapter

Deleting text and images

You can delete text and images from a document in either of two ways.

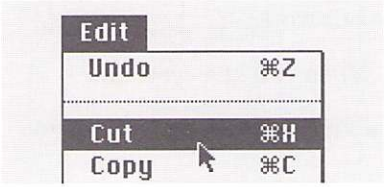
One method, using the Cut command, places the deleted material in an area of the computer's memory called the Clipboard so that you can get it back (until you copy or cut another item).

The second method, using the Clear command, removes the material and does not place it on the Clipboard.



1 Select the item to be removed.

The selection becomes highlighted (if it's text) or enclosed by a moving dashed outline or handles (if it's a graphic image).



2 Choose Cut or Clear from the Edit menu.

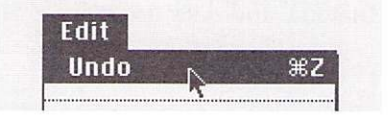
The selected item disappears from the screen.

❖ *Another way to clear text and images:* Pressing the Delete key also clears selected material. ❖

Canceling an editing action

You can cancel many editing actions with the Undo command, which in many programs reverses your most recent action (if it is possible to reverse that action).

The actions that you can undo vary among programs. The command is dimmed if it's not available.



If Undo is available, choose it from the Edit menu.

Choosing Undo a second time restores your original action.

❖ *Keyboard shortcut for Undo:* You can use the keyboard shortcut ⌘-Z to choose the Undo command. ❖

Saving documents

Saving your work often is the best safeguard against losing information. Macintosh programs offer several ways to save documents, providing great flexibility in managing and storing your work.

When you save, you can

- name the document
- change its name
- change its location
- save revisions with no change in name or location
- save all or part of a document in the Scrapbook desk accessory for quick access

Most saving options use a form of the directory dialog box, in which you name a document and select its storage location. (See Figure 3-11.)

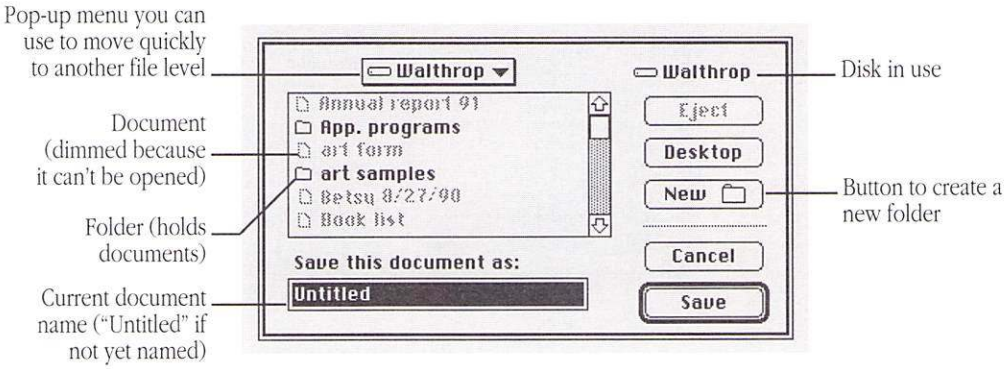
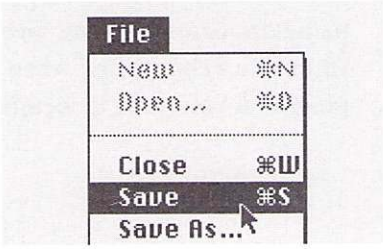


Figure 3-11 A directory dialog box for saving files

Saving a new document

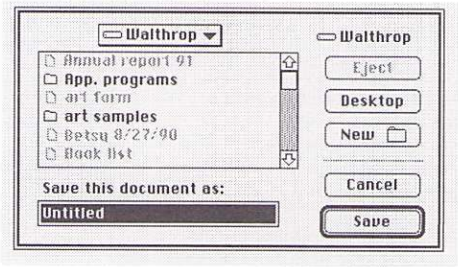
When you create a new document and save it for the first time, you need to name it.

When a document has not yet been named, the directory dialog box automatically appears when you choose the Save command. This dialog box also appears when you choose the Save As command.



1 Choose Save from the File menu.

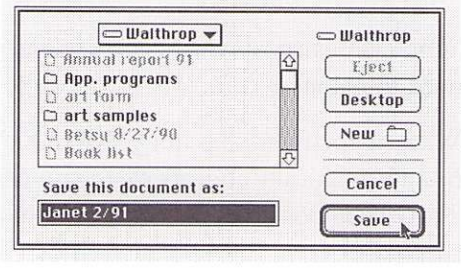
The directory dialog box opens. The name "Untitled" is selected (if the document hasn't been saved before).



2 Type a name for the document.

The name you type replaces the selected text in the box.

If you make a typing error, you can use the Delete key to backspace, or you can select the part of the name to be corrected, and then retype.



3 Click the Save button to save the document.

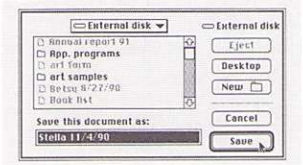
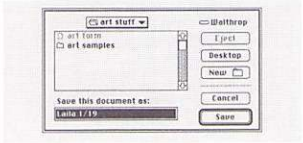
The program saves the document and the dialog box closes. The name of the document now appears in the window's title bar.

❖ *Another way to save:* Some programs, such as HyperCard and many database programs, save your document automatically after you make a change and when you close the document. In these programs, you name a document at the time you create it. ❖

Summary: Saving documents with revisions, new names, or in new locations

Table 3-1 summarizes the procedures for saving a revised document, saving a document under a new name, saving a second copy on the same disk, and saving a document on the desktop.

Table 3-1 Saving documents with revisions, new names, or in new locations

Task	Instruction	Example
Saving a revised document without keeping the original	1. Make the revisions. 2. Choose Save from the File menu.	
Saving a document under a new name (the original remains on the disk)	1. Choose Save As from the File menu. 2. Replace the current name by typing a new name. 3. Click the Save button.	
Saving a document under the same name in a new location on the same disk	1. Choose Save As from the File menu. 2. Open a folder (or create a new folder) where this copy of the document will be stored. 3. Click the Save button.	
Saving a document under the same name on the desktop	1. Choose Save As from the File menu. 2. Click the Desktop button. 3. Click the Save button.	

❖ *Keyboard shortcut for saving:* You can save revisions most efficiently by using the keyboard shortcut ⌘-S, which is available in many programs. ❖

When you save a document with a new name, the original document (with its original name) remains on the disk, in the version you last saved before changing the name. To avoid confusing different versions of a document, it's a good idea to include a number, date, or other identifier whenever you change a document's name.

To rename a document without retaining a version under the old name, rename its icon in the Finder.

If the disk or folder you're using already contains a document with the same name, you'll see a message alerting you that the version you're saving will replace the one already there. (See Figure 3-12.)

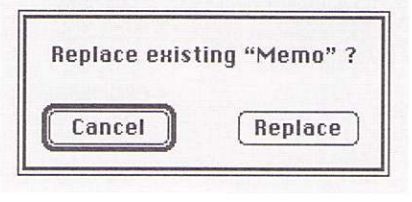


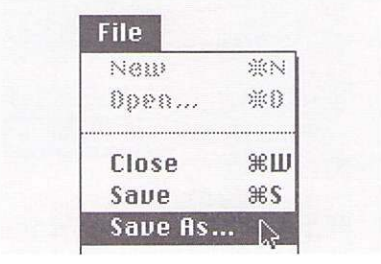
Figure 3-12 Dialog box to confirm replacing old version with new

You can avoid replacing the existing document by clicking Cancel. Clicking Replace replaces the existing document with the new one.

➤ *See also:* "Basic Editing" in Chapter 1
"Moving, Copying, and Renaming a Document " in Chapter 5
"Using Folders to Organize Your Work" in Chapter 5

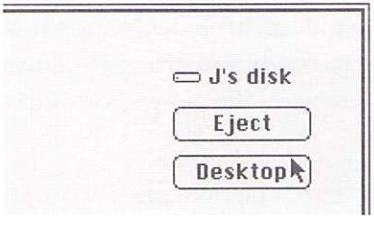
Saving a document on a different disk

You can easily change the disk on which you plan to store a document.



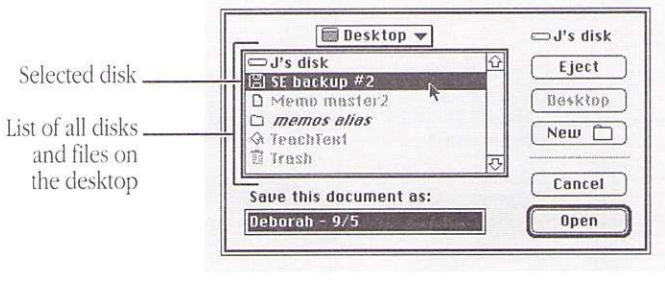
1 Choose Save As from the File menu.

The directory dialog box opens, with the document's name selected.



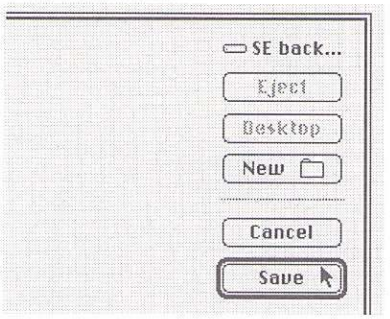
2 Click the Desktop button to display the names of other available disks.

You can save the document on a disk, directly on the desktop, or in a folder that's on the desktop.



3 Double-click the name of the disk you want to open.

If you're using floppy disks, you may have to eject a disk by clicking the Eject button and then inserting the desired disk.



4 If you wish, double-click a folder in which to store the document. Then click Save.

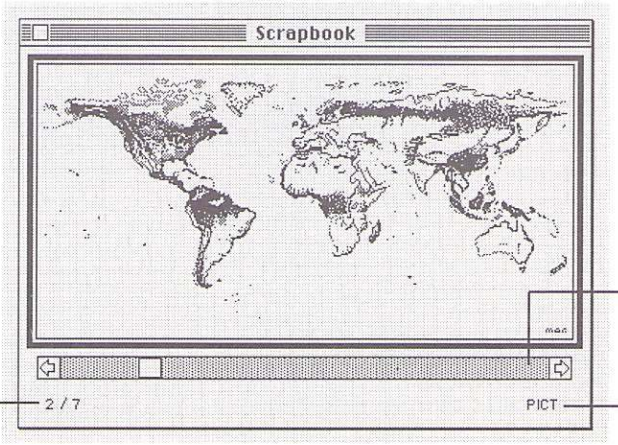
Any further changes you make in the document will be saved on the new disk.

If the disk or folder you're using already contains a document with the same name, you'll see a message alerting you that the version you're saving will replace the one already there. (See Figure 3-12.)

You can avoid replacing the old version by clicking Cancel in the alert box and giving the document a different name. Clicking Save replaces the old version with the new one.

Saving text, images, and sounds in the Scrapbook

The Scrapbook desk accessory provides an excellent storage place for text, images, sounds, and other material you use frequently. The Scrapbook is automatically included when you install system software. (See Figure 3-13.)



Clicking the scroll bar displays stored images.

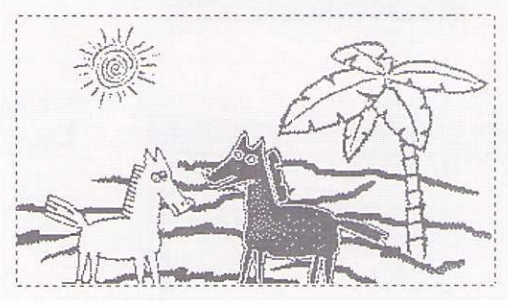
Image displayed/total images (a new image is placed before the one displayed)

Type of document displayed

Figure 3-13 The Scrapbook desk accessory

When the Scrapbook is open, the standard editing commands Cut, Copy, and Clear operate on the contents of its window.

To copy an image to the Scrapbook, follow these steps:



1 In your document, select the material you want to copy.

The selection will be highlighted or it will have a moving dashed line or a box with handles around it, depending on the program you're using.

2 Choose Copy from the Edit menu.

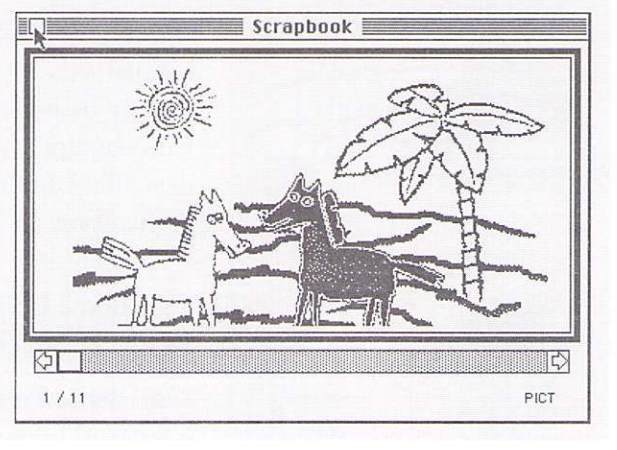
The selection is copied onto the Clipboard in the computer's memory.

3 Choose Scrapbook from the Apple menu.

The Scrapbook window opens, displaying the first item in the Scrapbook.

4 Choose Paste from the Edit menu.

The selection is pasted before the item displayed.



5 Close the Scrapbook by clicking its close box.

❖ *Keyboard shortcuts for Copy and Paste:* You can use keyboard shortcuts to copy and paste—⌘-C for Copy, ⌘-V for Paste. ❖

You can use the following editing commands in the Scrapbook:

- Cut (deletes the item displayed and stores it on the Clipboard)
- Copy (copies the item displayed and stores the copy on the Clipboard)
- Clear (deletes the item displayed)

❖ *Playing a sound in the Scrapbook:* Some application programs let you copy and paste sounds into the Scrapbook. To hear a sound that has been pasted into the Scrapbook, click the Play Sound button. ❖

You can create more than one version of the Scrapbook, but the system can work with only one Scrapbook file at a time. If you maintain several Scrapbook files, be sure to store them under different names so that you don't inadvertently replace one of them.

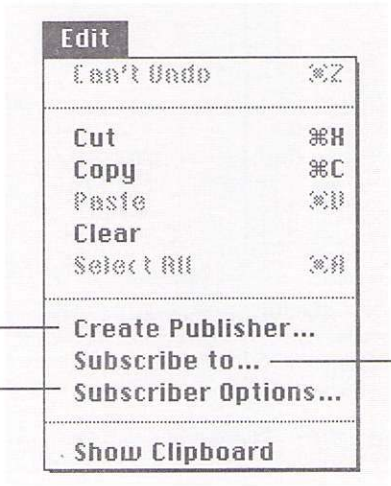
To swap Scrapbook files,

- remove the current Scrapbook File from the System Folder and give it a different name
- then rename the new file "Scrapbook File" and place it in the System Folder.

Updating documents automatically with publish and subscribe

In addition to copying text and images from one document to another, you can now copy and paste material in documents that is updated automatically when you make changes to the original.

Automatic updating is available only in certain application programs. If a program offers this capability, its Edit menu will include commands that use the terms "Publisher" and "Subscriber," like those in Figure 3-14.



Copies selected material into a special document called an *edition* that is updated whenever the original is changed

Lets you select timing of updates, locate files, and cancel updating (changes to Publisher Options when a publisher is selected)

Displays a dialog box that lets you select and insert an edition in the open document

Figure 3-14 The Edit menu for a program with automatic updating capability

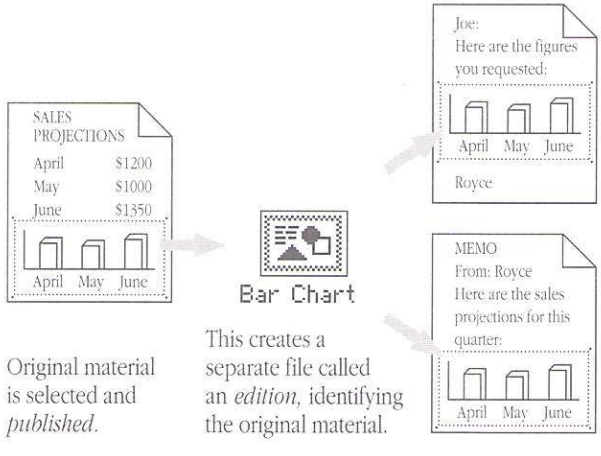
Understanding publishers, subscribers, and editions

The automatic updating capability is essentially dynamic or automated copying and pasting of material from one document to one or many other documents.

To use this capability, you designate the material you want to have updated automatically; it is called a *publisher*. This material is saved as a file, called an *edition*. (If you designate two different parts of a single document as publishers, the Macintosh makes two separate edition files.)

You can then open a document and indicate where you want the material in the edition inserted; the inserted material is called a *subscriber*. When you later edit the original version of the material (the publisher), your changes are automatically saved in the edition and inserted in documents that contain subscribers to that edition. You can designate as many subscribers to an edition as you want, and those documents can be located anywhere—even on another disk or on a Macintosh or file server on a network.

Figure 3-15 shows the process of creating a publisher and an edition and inserting an edition into a subscriber document.



Original material is selected and *published*.

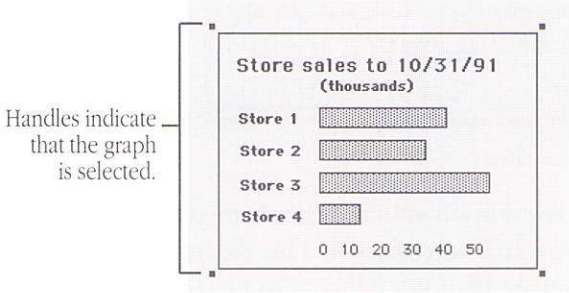
This creates a separate file called an *edition*, identifying the original material.

One or more other documents can *subscribe* to the material. When the original material is edited (such as when a chart is revised), these documents are updated automatically.

Figure 3-15 Examples of a publisher, an edition, and subscribers

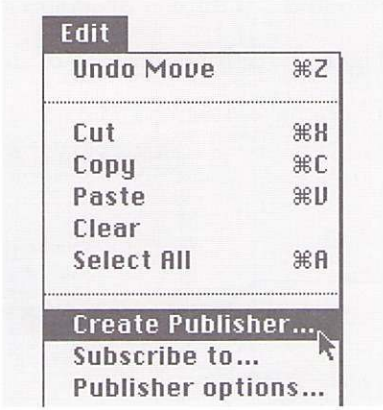
Creating a publisher

You can create a publisher while working in an application program that supports the publish and subscribe features.



1 Select the item you want to make into a publisher.

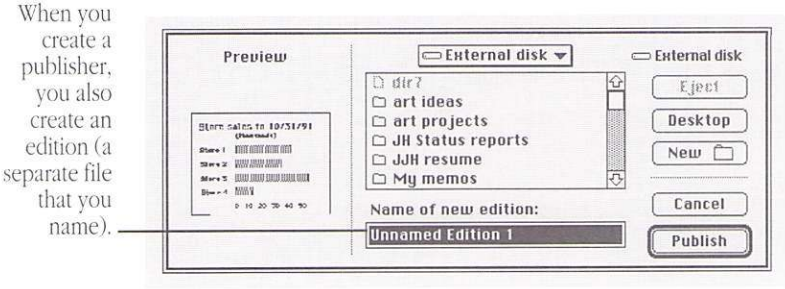
You must be using a program that supports publishers and subscribers.



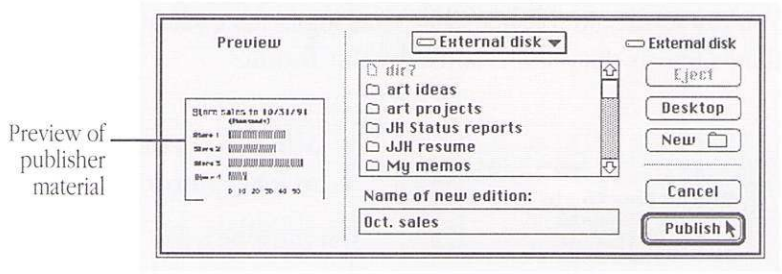
2 Choose Create Publisher from the Edit menu.

When you create a publisher, the information is saved in an edition (a separate file that's updated when you change the original material).

You can save the edition anywhere you like.



3 Type a name for the edition (the separate file that contains the material you selected).



4 Click the Publish button.

The selected item becomes a publisher, and the edition file you named is saved in the location you specified. The publisher stays in your original document.

The edition you named when creating a publisher contains the material you selected. This file has its own type of icon and can be opened but not edited. (You change the material by editing the publisher—the material you selected—in the original file. You can recognize a publisher by its special border.)

Figure 3-16 shows the icon of an edition and its open window.

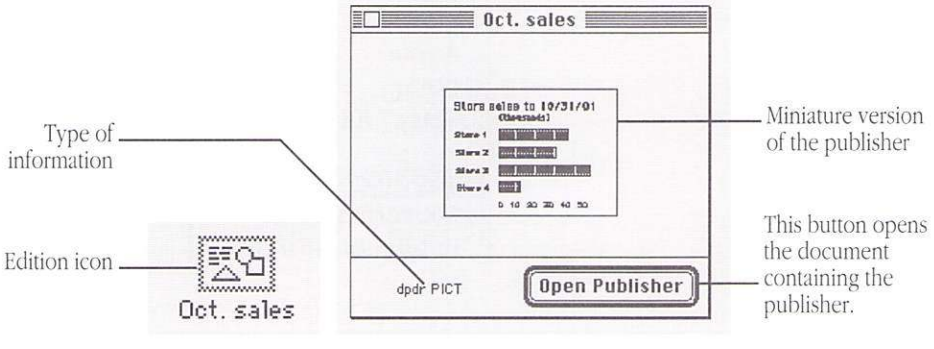
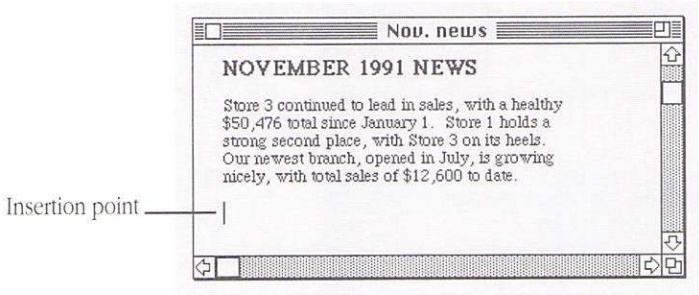


Figure 3-16 The icon and window for an edition named "Oct. sales"

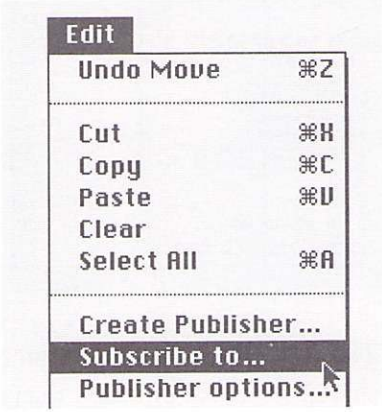
Creating a subscriber

Once you've created an edition, you can put it in one or more documents.



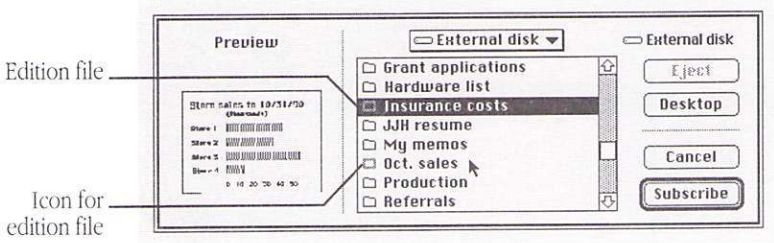
1 **Open the document in which you want to insert the edition, and set an insertion point.**

You must be using a program that supports publishers and subscribers.



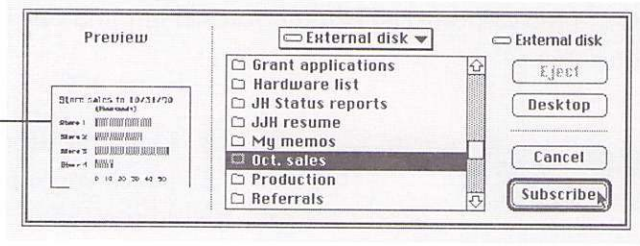
2 **Choose Subscribe to... from the Edit menu.**

A dialog box opens, showing a list of editions that can be inserted in the open document. The edition used most recently is selected.



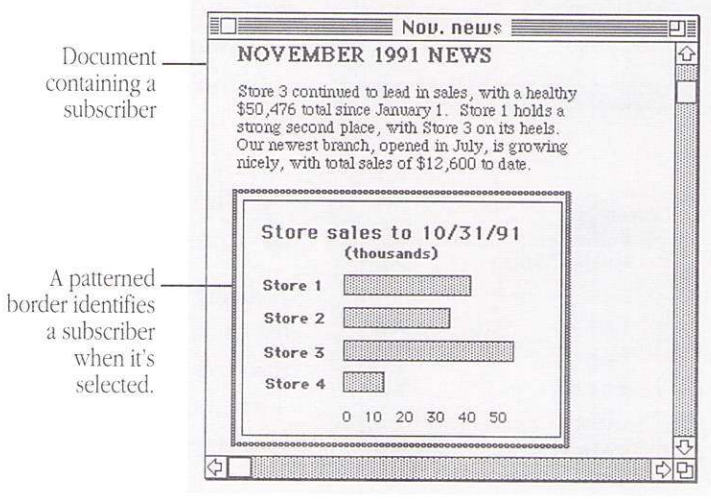
3 **Use the dialog box to locate the edition you want, and click to select it.**

You can recognize an edition by its icon.



4 Click the Subscribe button.

When you click, the edition's content—updatable material—is inserted in the open document.



5 Check that the subscriber appears where you want it in the document.

If necessary, you can reposition the subscriber in the usual way—by selecting and cutting it, then pasting it in the right place.

The subscriber remains in your document until you cancel it, change its status, or cancel the publisher to which it subscribes.

Publisher and subscriber options

You can specify certain options for publishers and subscribers, including how and when subscribers receive the latest changes to the edition.

Publisher and subscriber options allow you to

- update editions automatically or manually
- cancel the publisher or subscriber currently selected (cancellation means that the material is no longer automatically updated)
- open the publisher of the selected material
- see the location of the current publisher or subscriber in a pop-up menu
- see the date and time that the edition was most recently updated

Consult the documentation that came with your application program for complete details about creating and using publishers, subscribers, and editions.

You set options for a publisher by selecting it in the original document and choosing Publisher Options from the Edit menu. Figure 3-17 shows the Publisher Options dialog box.

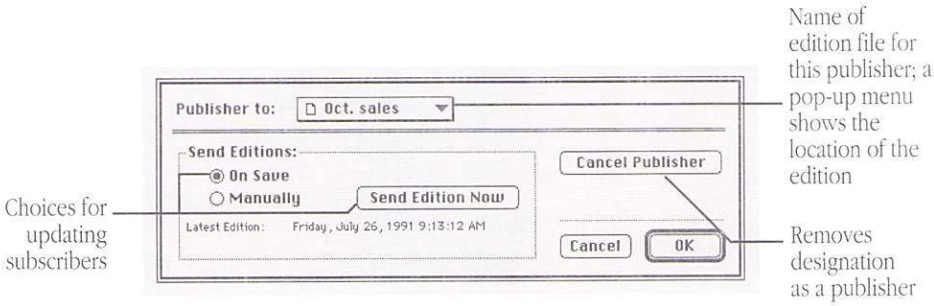


Figure 3-17 The dialog box for publisher options

You set options for a subscriber by selecting it in a document and choosing Subscriber Options from the Edit menu. Figure 3-18 shows the Subscriber Options dialog box.

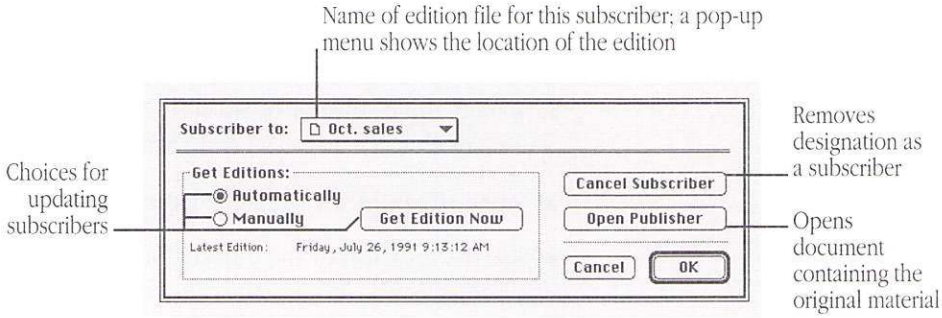


Figure 3-18 The dialog box for subscriber options

Table 3-2 presents some ways to use the automatic updating capabilities of publishers and subscribers.

Table 3-2 Sample uses for publishers and subscribers

Files containing publishers	Files containing subscribers
The drawings made by an artist for a report	The master documents belonging to a writer preparing and revising the report
Charts, tables, and financial data prepared by a manager or statistician	Documents belonging to members of a work group who use the charts for status reports, budgets, or presentations
Templates prepared by an administrator	Documents belonging to members of a group who use templates to prepare their work

Using publishers, subscribers, and editions is especially useful for documents that are shared by Macintosh computers on a network, because the information can be updated over the network.

➤ *See also:* "Networking Features of Your Macintosh" in Chapter 1 of the *Macintosh Networking Reference*
"Linking Programs Over the Network," Chapter 6 of the *Macintosh Networking Reference*

Creating document templates

Most documents created with an application program can be saved as or converted into a *stationery pad,* which is a template form of the document. The template retains the format and content it had at the time you made it into stationery, and you can use it repeatedly as a master for similar documents.

Making a document into a stationery pad using an application program

Many application programs allow you to save a document as a stationery pad. You can determine if a program offers this feature by opening a document and choosing Save As from the File menu; if the dialog box contains a stationery option, clicking it before saving will make the document into a stationery pad.

Figure 3-19 shows the stationery pad option in a Save As dialog box.

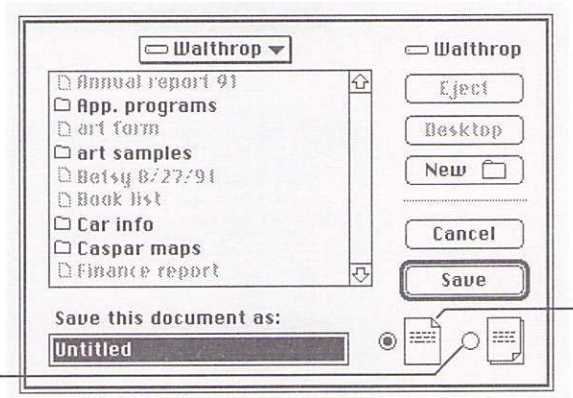
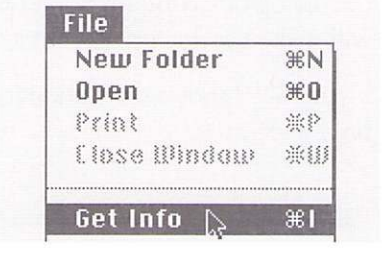


Figure 3-19 The Save As dialog box from TeachText, a program that supports stationery

Making a document into a stationery pad using the Finder

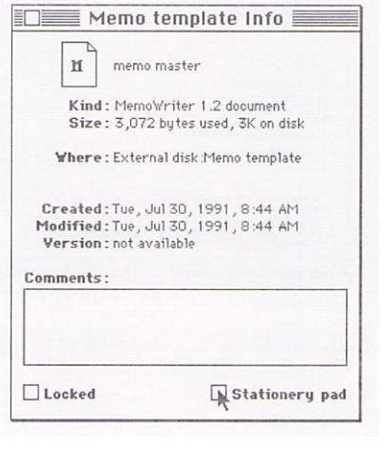
If the program you're using does not include a stationery pad option, you can use a document's Info window to create a stationery pad.

1 Select the document you want to make into a stationery pad.



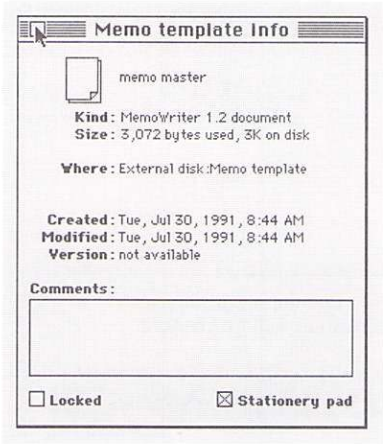
2 Choose Get Info from the File menu.

The Info window for the document is displayed.



3 Click the box labeled "Stationery pad" at the bottom of the window.

When you click, the icon in the Info window changes to resemble a pad of paper.



4 Click the close box to save the document as a stationery pad.

The document's icon now resembles a stationery pad.

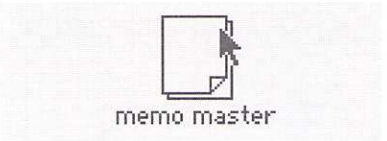
To change the document back to a regular file, you uncheck the box labeled "Stationery pad" in the Info window.

Using a stationery pad

Once you've made a document into a stationery pad, you open it like any other document—by double-clicking its icon or by selecting it and choosing Open from the File menu.

If the stationery pad belongs to a program that supports stationery, a new, untitled document opens. You then add the content you want and save the document, naming it when you save.

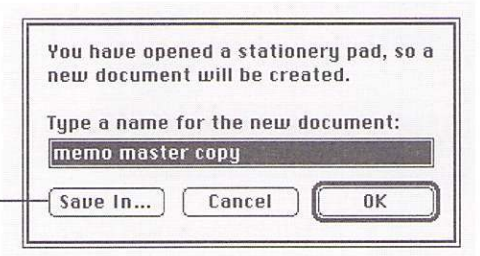
If a stationery pad belongs to a program that does not support stationery, you name the new document when you open the stationery pad. The steps that follow present this procedure.



1 Double-click the icon of the stationery pad you want to use.

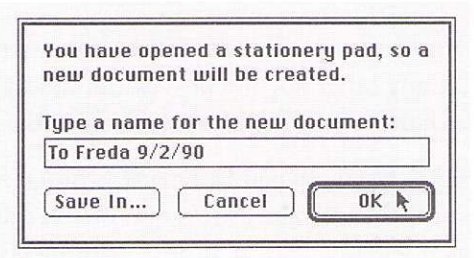
A dialog box appears asking you to name the document.

This button displays a directory dialog box for saving the document in a different location.



2 Type a name for the new document.

You can use the Save In button to specify a different location for the new document.



3 Click OK to open the new document.

The new document is a regular document, not a stationery pad.

Working with desk accessories

Some desk accessories—essentially small application programs—are supplied with the Macintosh system software, and many others are provided by independent manufacturers.

You can use desk accessories like other programs, opening them by double-clicking their icons, putting them in the Apple menu, or creating aliases for convenience and easy access.

Many desk accessories that were created for earlier versions of the system software can also be used with the current software. You can recognize these older desk accessories by their special icon. (See Figure 3-20.)

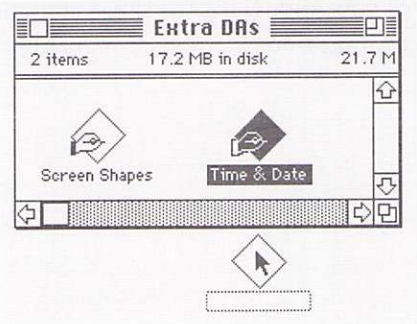
Figure 3-20 Icon for desk accessories released before version 7.0

Using a desk accessory from an earlier version of Macintosh system software

A desk accessory file with a suitcase icon may contain one or more desk accessories. You need to remove the desk accessories from the suitcase in order to use them. You can then put the desk accessories you want to use in the Apple menu, on the desktop, or in another convenient location.

1 Double-click to open the desk accessory file.

The file opens into a window that contains an icon for each desk accessory.



2 Drag the item you want out of the window and put it in a convenient location.

If you drag a desk accessory to the System Folder, you will be asked whether you want it placed in the Apple Menu Items folder. If you click OK, the desk accessory will be available from the Apple menu.

You can discard the empty suitcase by dragging it to the Trash.

Managing system memory

Occasionally you may need to make an adjustment in your use of the computer's random-access memory (RAM) in order to work efficiently with large programs or with several programs at once.

Becoming familiar with the amount of memory your Macintosh has and the memory requirements of the programs you use can help you take full advantage of the computer's capabilities.

Some models of the Macintosh can use part of a hard disk's available space as *virtual memory*—an extension of the computer's RAM that can be used for opening programs and creating documents.

Minimum memory requirement

Your computer must have 2 megabytes (MB) of RAM to use version 7.0 (or later) of the Macintosh system software. Two megabytes usually allows you to open one program and one or more desk accessories, or two programs that do not require large amounts of memory.

Most Macintosh computers can use 4 MB of system memory or more; consult the *Special Options and Technical Information* booklet for your model (or the documentation that came with your computer) for its memory capabilities.

Checking memory use in your Macintosh

You can check your system's total memory and the amount of memory being used by each open program in the About This Macintosh window. (See Figure 3-21.)

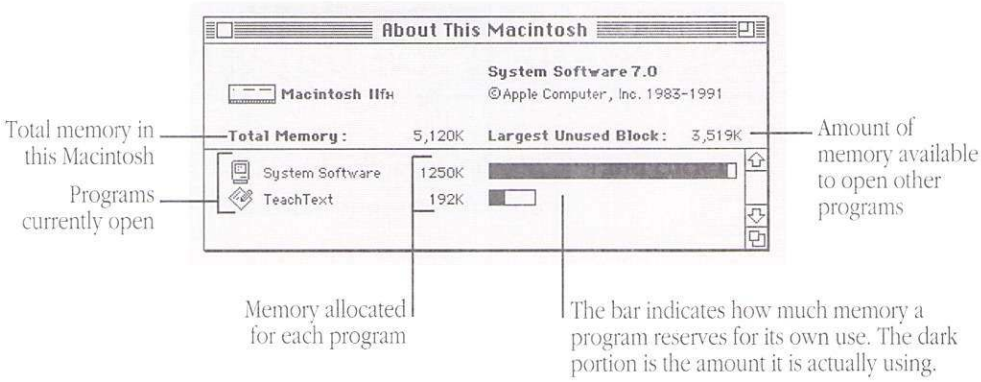
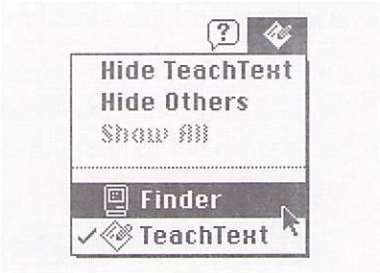
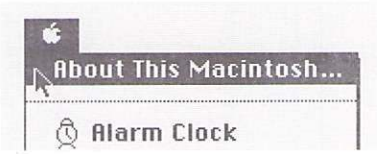


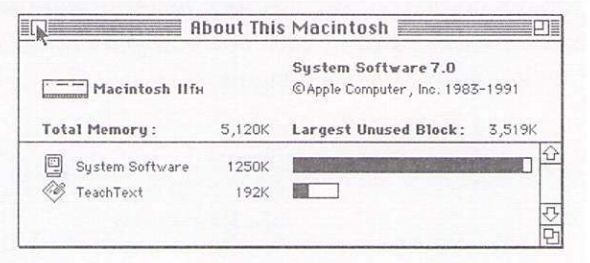
Figure 3-21 Memory information about the Macintosh



1 Make the Finder active by choosing it from the Application menu.



2 Choose About This Macintosh from the Apple menu.



3 Click the close box to close the window.

Consult your authorized Apple representative if you want to add more RAM to your Macintosh.

➤ *See also:* "Expanding System Memory With Hard Disk Space" (the next section)

Expanding system memory with hard disk space

Some Macintosh computers can use hard disk space to increase the computer's memory. The disk space, called *virtual memory,* is not available for storing information when it is being used for this purpose. If your Macintosh can use virtual memory, the Memory control panel includes virtual memory controls.

Figure 3-22 shows the icon and the open window of the Memory control panel with the adjustments for virtual memory (and for other memory-related tasks discussed elsewhere in this chapter).

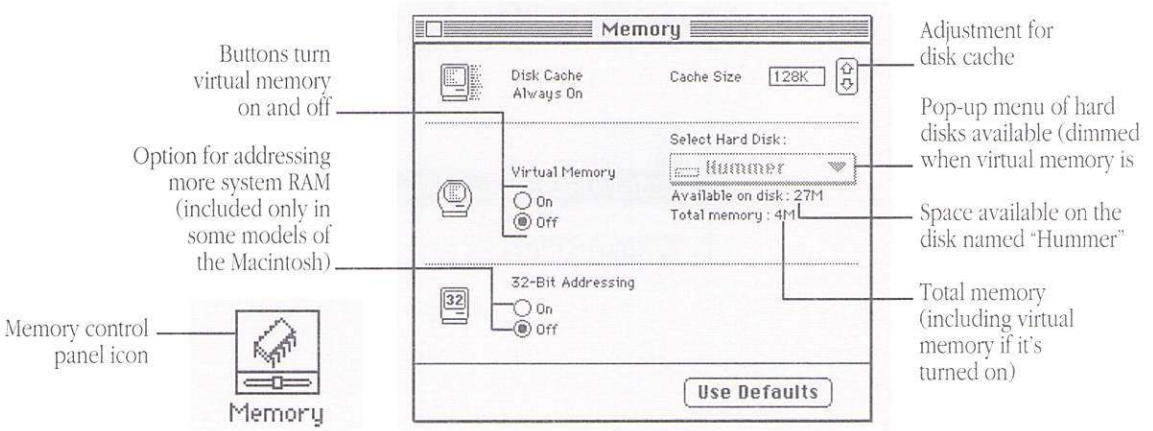


Figure 3-22 The icon and window of the Memory control panel

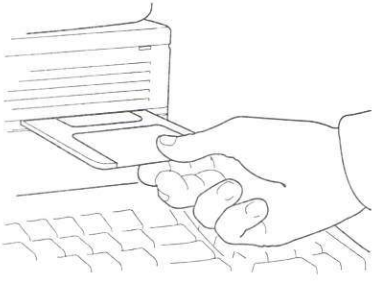
Your Macintosh should contain enough built-in RAM for your regular needs—that is, for the programs you frequently have open simultaneously. You can use virtual memory when you want to open additional programs or to work with extremely large documents.

The Memory control panel is preset to allot the same amount of virtual memory as the amount of RAM installed in your Macintosh. Choosing a larger amount of virtual memory is likely to slow the computer's performance.

Virtual memory is more effective when you are using several small programs simultaneously. It is less effective when using one very large program.

△ **Important:** When you turn on virtual memory, the system software sets aside a large amount of space on the hard disk being used for virtual memory. For example, if your Macintosh has 4 MB of RAM and you add 2 MB of virtual memory, 6 MB of space on your hard disk will be set aside. △

Before you can turn on virtual memory, you need to update your Apple hard disks using the Apple HD SC Setup program, which is on the *Disk Tools* disk. Begin this procedure with the Macintosh turned off.

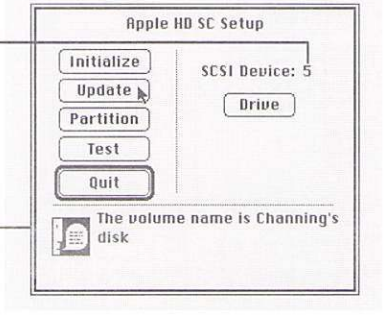


1 Insert the disk labeled *Disk Tools* and turn on the computer.

2 Open the disk icon.

Double-click the icon, or select the icon and choose Open from the File menu.

3 Open the Apple HD SC Setup icon.



SCSI ID number of the current hard disk

Message area showing the name of the current hard disk

4 Click Update to update the selected hard disk.

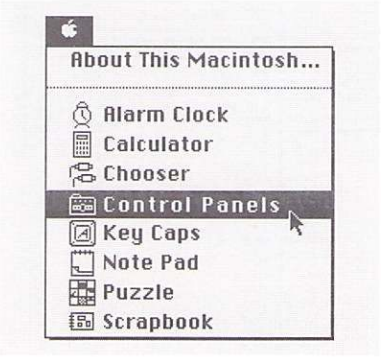
If you have more than one hard disk, you can click Drive to select a different disk and then click Update. Repeat this procedure until you have updated all your hard disks.

5 After you have updated all of your hard disks, click Quit.

6 Choose Restart from the Special menu.

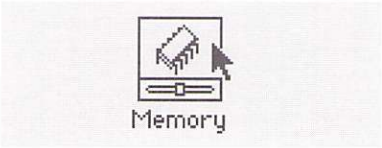
The *Disk Tools* disk is ejected, and your computer restarts.

Now you can turn on virtual memory.

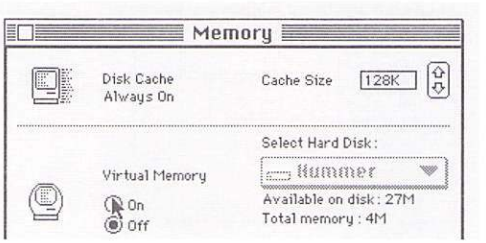


7 Choose Control Panels from the Apple menu.

The Control Panels window appears.

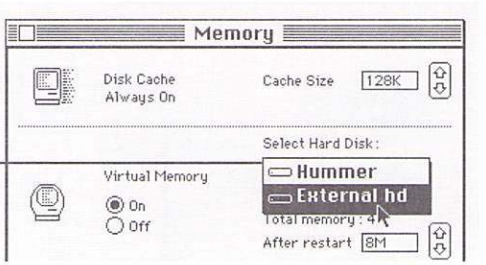


8 Open the icon for the Memory control panel.

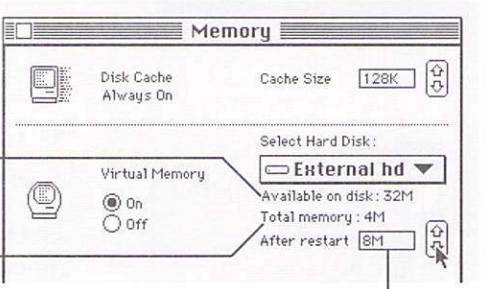


9 **Click the On button to turn on virtual memory.**

The pop-up menu becomes available when you click On.



10 **Use the pop-up menu to select the hard disk on which space will be allocated for virtual memory.**



11 **If necessary, click the up or down arrow to adjust the amount of disk space to be used as virtual memory.**

It is recommended that you accept the preset size.

12 Choose Restart from the Special menu.

After restart, the total memory available for application programs—which you can see in the About This Macintosh window—includes the disk space you designated.

➤ *See also:* "Checking Memory Use in Your Macintosh" (the previous section)
"Adjusting the Disk Cache" later in this chapter
"Turning On 32-Bit Addressing" later in this chapter

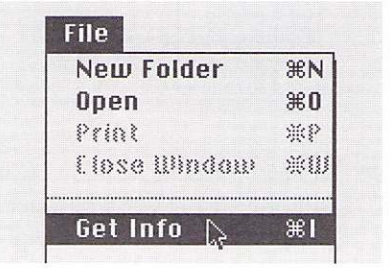
Clearing system memory that has become fragmented

When a program opens, it reserves a block of memory for itself. If you've opened and closed a number of programs, your Macintosh memory can become fragmented. When this happens, you may not be able to open another program, even if you know that your Macintosh usually has enough memory to open that program. You may be able to solve this problem by quitting some or all of the programs you have open, then starting them again. Restarting the Macintosh also corrects the problem.

Changing the amount of memory a program uses

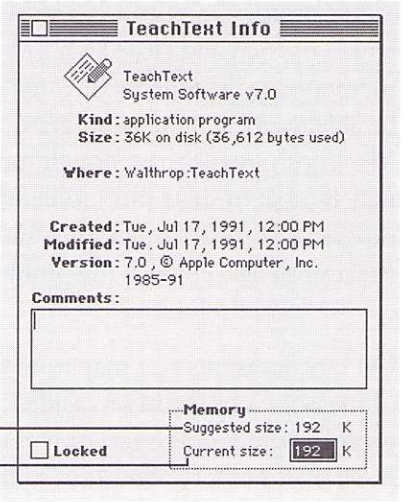
On rare occasions you may need to increase or decrease the amount of memory a program sets aside for itself. You might want to open more documents at once, or you might want to decrease the program's memory allocation so that you can open more programs at once. You can do this by adjusting the program's memory size in its Info window.

1 Quit the program if it's open, then click the program's icon to select it.



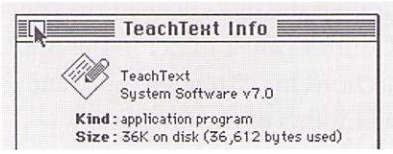
2 Choose Get Info from the File menu.

The Info window appears.



3 Drag across the number in the box labeled "Current size" and type a new number that's larger than the suggested size.

Making the program smaller than the suggested size may cause it to work more slowly or may cause other problems.



4 Close the Info window.

If you type a number that's too small, you'll see a message asking whether you want to make it smaller than the suggested minimum size. Click Cancel.

The next time you start the program, it will set aside the new amount of memory you allocated.

Adjusting the disk cache

The disk cache in your Macintosh affects the number of programs and desk accessories you can use simultaneously.

The disk cache is memory set aside to help programs work more quickly and efficiently. The memory assigned to the disk cache is not available for opening more programs or documents, however.

The preset and maximum sizes of the disk cache depend on the amount of RAM in your Macintosh. If you often want to open more programs than memory allows, try setting the disk cache to a smaller size—such as 32K or 64K.

You set the disk cache in the Memory control panel, located in the Control Panels folder in the Apple menu. (See Figure 3-23.) The sections for virtual memory and 32-bit addressing do not appear in all models of the Macintosh.

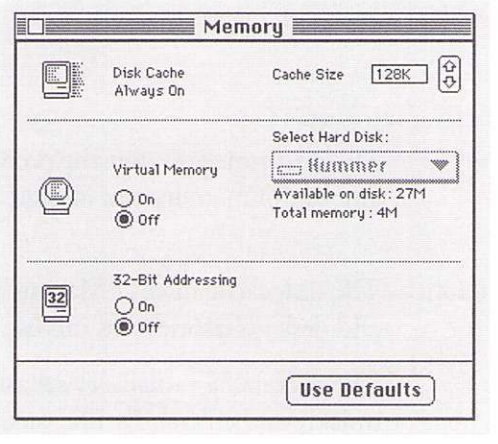
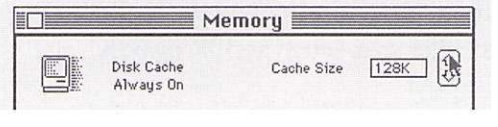


Figure 3-23 Memory control panel showing disk cache adjustments



1 Click the up or down arrow to adjust the size of the disk cache or click Use Defaults to use the preset size.

The Use Defaults button also sets virtual memory to the preset amount.

2 Choose Restart from the Special menu.

The new size of the disk cache takes effect when the Macintosh restarts.

Turning on 32-bit addressing

Some Macintosh computers can use very large amounts of RAM (more than 8 MB, for example) by taking advantage of 32-bit addressing. The Memory control panel for these computers allows you to turn 32-bit addressing on and off. (See Figure 3-24.)

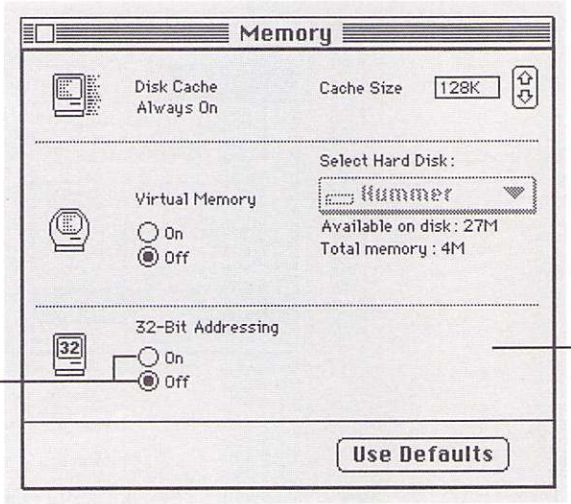
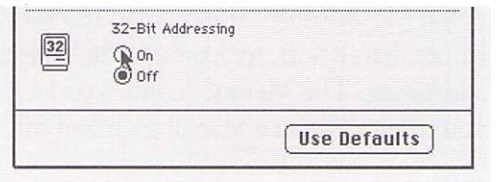


Figure 3-24 Memory control panel showing 32-bit addressing option

If you want to use two or more very large programs or work with several very large documents simultaneously, the combination of greatly expanded RAM and 32-bit addressing is especially valuable for working efficiently.

The 32-bit addressing section doesn't appear in the Memory control panel if your Macintosh does not have this capability. (You can also consult the *Special Options and Technical Information* booklet for your Macintosh or other documentation to find out if your computer has this capability.)



1 **Click the appropriate button to turn 32-bit addressing on or off.**

2 **Choose Restart from the Special menu.**

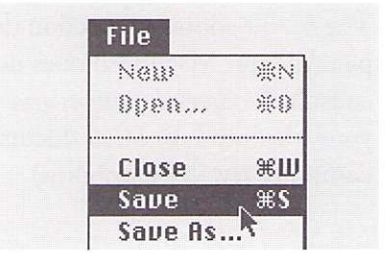
The change takes effect when the Macintosh restarts.

Ending a work session

When you've finished your work—with a program or for the day—it's a good idea to make backup copies of your new work and perform a couple of maintenance tasks before leaving the computer.

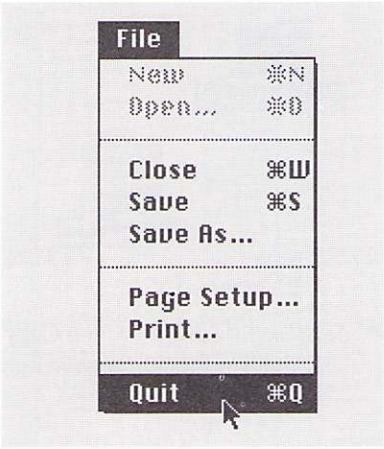
Quitting an application program

If you are finished using a program, use the Quit command to close all the program's windows and quit the program.



1 **Save any work you did since you last saved the current document.**

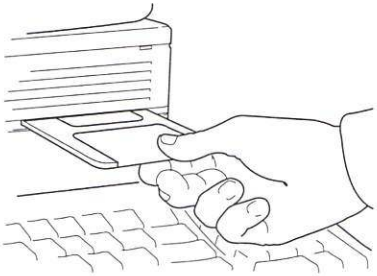
It's good practice to save your work often—every ten minutes or so while working actively in a document.



2 Choose Quit from the File menu.

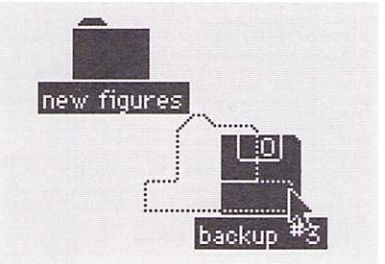
Backing up the session's work

If you didn't make backup copies of your work when you saved it, be sure to copy any important documents you've revised during the session. It's safest to copy your work onto a disk different from the one on which the original documents are stored.



1 **Insert a backup disk in one of the system's disk drives.**

You can back up onto a hard disk, but it's safest to keep floppy disk backups as well.



2 Copy the new and changed files by dragging their icons to the icon of the backup disk.

➤ *See also:* "Making a Backup Copy of a Disk" in Chapter 6
"Backing Up the Information on a Hard Disk" in Chapter 6

Shutting down the computer

When you have finished work for the day and have backed up your work, you can turn off the Macintosh. (Although you can safely leave your computer turned on if you wish, it's a good idea to turn the computer off if you will not be using it for a long period of time.)

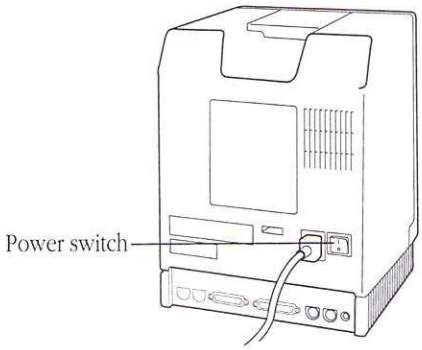
If you have a Macintosh Portable, it's recommended that you put the computer to sleep rather than shutting down. (See the *Macintosh Portable Handbook* for more information.)

The procedure for turning off the Macintosh varies depending on the model you use, but you should always use the Shut Down command before turning off the power switch.

△ **Important:** Always use the Shut Down command before turning off your Macintosh. This command prepares the system software for shutdown. You may damage your information or your software if you regularly turn off the Macintosh without using the Shut Down command. △

1 Choose Shut Down from the Special menu.

Some models of the Macintosh turn off automatically when you choose Shut Down. Others display a message on the screen telling you that it's all right to turn off the switch.



2 If necessary, switch off the computer.

➤ *See also:* "Using Special Keys and Indicators on the Keyboard" in Chapter 1
"Turning the Macintosh On and Off" in Chapter 1

4

Printing Documents and Working With Fonts

The Macintosh provides several different ways to print documents, whether you are using a program or working in the Finder.

This chapter explains how to prepare to print, how to choose options for paper, image size, and print quality, how to print documents, and how to work with fonts.

Getting ready to print

Before you can print a document, you need to connect a printer to your Macintosh and prepare the system software to use the printer.

➤ *See also:* "Using Fonts With Printers and Other Peripheral Devices" in this chapter
"Connecting a Printer" in Chapter 8

Placing printer drivers in the System Folder

A printer driver for each type of printer you want to use must be in your System Folder. Figure 4-1 shows the icon of the LaserWriter and ImageWriter printer drivers, which are supplied with the Macintosh system software. (A printer driver is software that allows the Macintosh to communicate with a particular type of printer.)

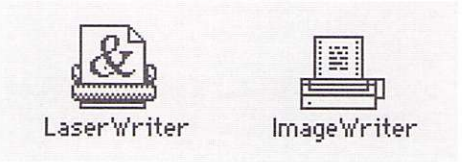


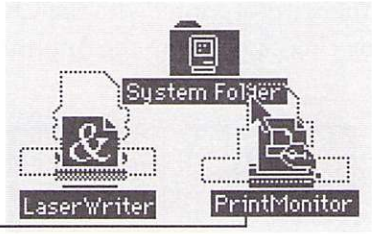
Figure 4-1 The icons for the LaserWriter and ImageWriter printer drivers

The printer drivers supplied with the system software may change to accommodate new printing capabilities or new printer models. The manual for your printer will provide information about any significant changes in printer drivers, and a driver is included with every Apple printer.

If you've installed system software on a hard disk using the Easy Install method, you can skip the following procedure; the Installer copies all the printer drivers and the PrintMonitor program to the System Folder.

You can also use the copy of the Installer on the *Printing* disk supplied with the system software to install printer drivers.

To print with a LaserWriter while doing other work with the computer, be sure that the PrintMonitor program and the LaserWriter driver are in the Extensions folder inside the System Folder.



Special program used for background printing with the LaserWriter

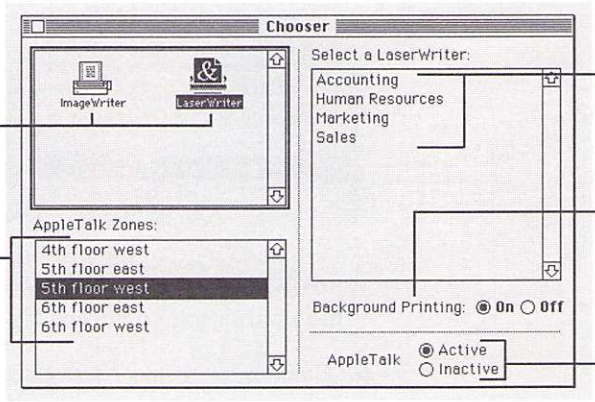
Drag the driver icon for each printer you want to use to the System Folder on your startup disk

If you want to print with a LaserWriter, be sure to include the PrintMonitor program.

➤ *See also:* "Printing While Using the Computer for Other Work" later in this chapter
"Updating Printer Drivers for Macintosh Computers Using System 7 and System 6 on a Network" in Appendix B

Choosing a printer

You can have several output devices, such as printers, connected to your Macintosh—directly or on a network. You select the printers and other devices you want to use with the Chooser. (See Figure 4-2.)



Types of devices available (the LaserWriter is selected)

Network zones (this list appears only if the Macintosh is on a network that has zones)

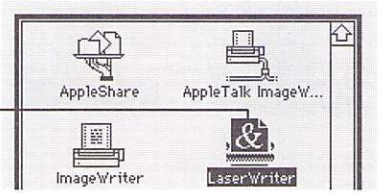
Names of individual printers

Option for printing while the computer does other work

AppleTalk must be active to use network devices or to print with a LaserWriter connected to the printer port.

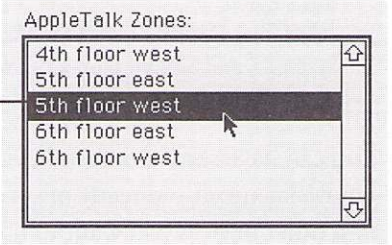
Figure 4-2 The Chooser window

You select a printer with the Chooser open (you open the Chooser by choosing it from the Apple menu).



LaserWriter is the type of device selected.

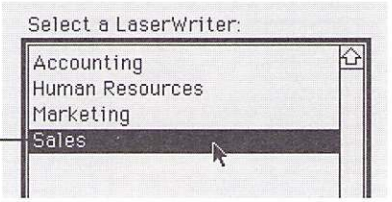
1 Click the type of printer you want to use in the upper-left area of the Chooser.



The network zone in which a LaserWriter will be selected

2 If necessary, select the zone your printer is in by clicking its name in the lower-left area of the Chooser.

The list of zones appears only if your Macintosh is on a network that has zones.



"Sales" is the name of the printer selected.

3 Select the specific printer you want to use by clicking its name in the list in the upper-right area of the Chooser.

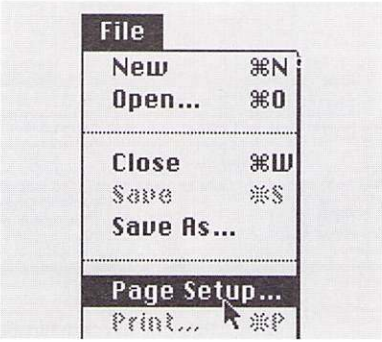
Your choice takes effect immediately. It's a good idea to close the Chooser after you've chosen a printer.

- *Choosing a printer that's directly connected:* When you use the Chooser to select an ImageWriter or other printer that is connected directly to your Macintosh, you follow a similar procedure, except that you don't select the name of a printer. Instead, you specify whether your printer is connected to the printer port or the modem port by selecting the icon for the port to which your printer is connected. ❖

➤ *See also:* "Connecting a Printer" in Chapter 8

Selecting Page Setup options

You use the Page Setup dialog box when you've selected a new printer in the Chooser or when you want to use a different paper size or printing option.



Choose Page Setup from the File menu and select the options you want.

The preset choices (or those selected most recently) are displayed when the dialog box opens.

Figure 4-3 shows the Page Setup options for the LaserWriter.

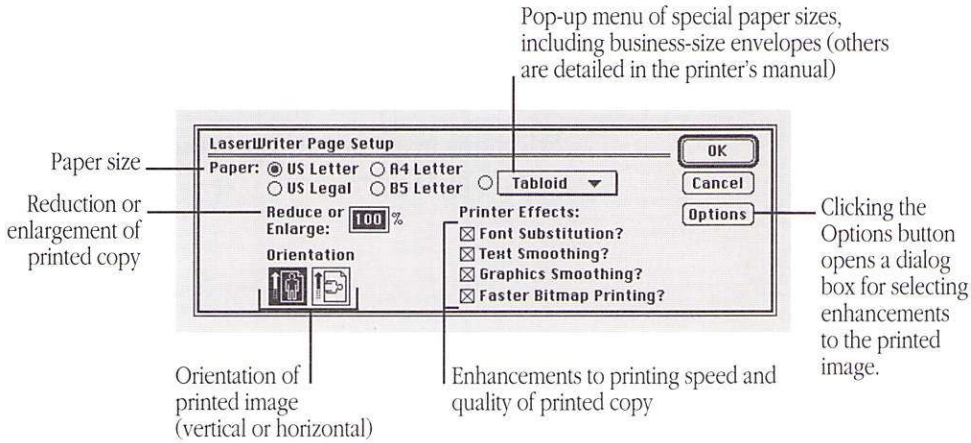


Figure 4-3 Page Setup dialog box for the LaserWriter

You can choose Show Balloons from the Help menu to get descriptions of the enhancements provided in the Options dialog box, or check your printer's manual for details.

Figure 4-4 shows the Page Setup options for the ImageWriter.

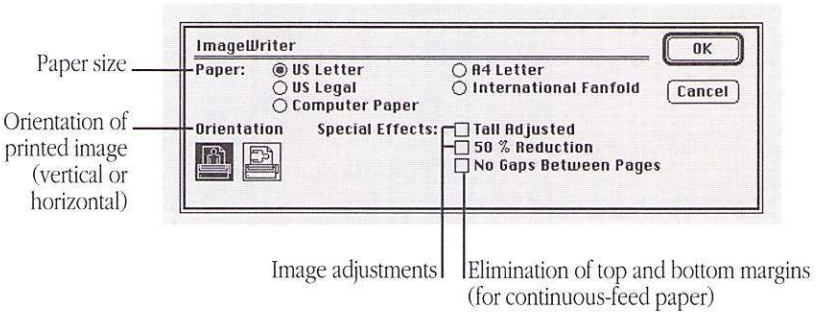


Figure 4-4 Page Setup dialog box for the ImageWriter

You'll see different options depending on the type of printer you're using. Some programs provide additional options in their Page Setup dialog boxes.

Selections made in the Page Setup dialog box remain in effect until you change them.

Printing your work

Printing while using an application program is probably the most common method, but the Macintosh also lets you print documents from the Finder.

When you begin printing (by choosing the Print command from the File menu), you use the Print dialog box to specify printing options.

Figure 4-5 shows the Print dialog box for the LaserWriter.

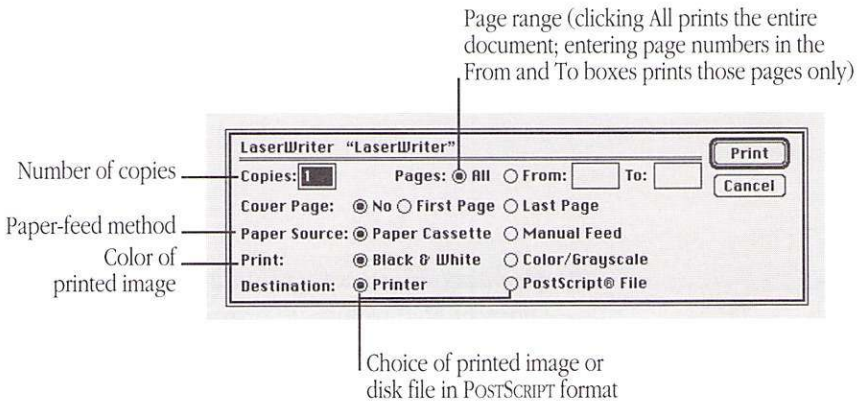


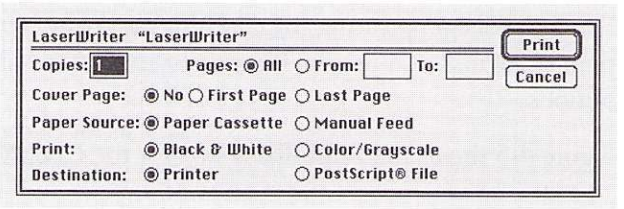
Figure 4-5 The Print dialog box for the LaserWriter

- *Printing color or gray-scale documents:* You can print color or gray-scale documents on any color printer that can use the LaserWriter driver. If you print a color document on a printer that prints only in black and white, the document will be produced in a *halftone* format; that is, it will be composed of patterns of dots. ❖

Other printers offer different options in the Print dialog box. Some programs offer additional printing options, such as the order in which a document's pages are printed.

Printing from within a program

You can easily print a document while working in a program's active window.



Choose Print from the File menu, then select the options you want in the Print dialog box and click Print.

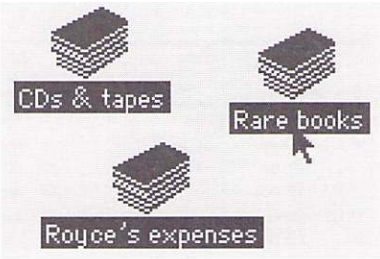
After a moment, a status box appears. (If you're using a LaserWriter and the PrintMonitor program, the status box disappears after a few seconds, and you can resume other work while printing continues.)

❖ *Keyboard shortcuts for printing:* You can use the keyboard shortcut ⌘-P to initiate printing in most programs, and you can press Return instead of clicking Print in the Print dialog box. ❖

➤ *See also:* "Preparing to Use Background Printing" later in this chapter
"Managing Printing Jobs" later in this chapter

Printing from the Finder

You can print one or more documents from the Finder—without starting their programs first.



Select the documents you want to print, choose the Print command from the File menu, then select the options you want in the Print dialog box and click Print.

If the documents were created by different programs, you need to select options in each Print dialog box that appears.

❖ *Keyboard shortcut for printing:* You can press Return or Enter instead of clicking Print in the Print dialog box. ❖

➤ ***See also:*** "Using a List View to See Several Levels of Files" in Chapter 5

Printing the contents of a window

You can print the contents of an active window when you're working in the Finder. Figure 4-6 shows a printed image of a window with its contents arranged alphabetically by name.

Macintosh Hard Disk

Name	Size	Kind	Label	Last Modified
Application programs	—	folder	—	Wed, May 1, 1991, 1:00 PM
Art ideas	—	folder	In Progress	Fri, Oct 4, 1991, 6:00 AM
Cat	6K	document	Good	Thu, Apr 16, 1991, 2:36 PM
Dog	6K	document	So-so	Fri, Oct 4, 1991, 6:00 AM
Letters	—	folder	Essential	Sun, May 19, 1991, 1:57 PM
Business	—	folder	—	Fri, May 17, 1991, 3:12 PM
Personal	—	folder	—	Fri, May 17, 1991, 3:10 PM
To Friends	—	folder	—	Mon, May 13, 1991, 4:00 AM
To Mom	—	folder	—	Sun, May 12, 1991, 4:15 PM
System Folder	—	folder	—	Mon, Apr 29, 1991, 11:59 PM
Teach Text	37K	application program	—	Fri, Mar 1, 1991, 12:00 AM
The Police	5K	document	Hot	Wed, Oct 2, 1991, 11:46 AM
Utilities	—	folder	—	Fri, Mar 25, 1991, 3:15 PM

Figure 4-6 Printed version of a window with contents arranged by name

The printed view is a "snapshot" of the window's entire contents, showing icons and information for folders and documents in their relative positions, or a list of the items, in the same order that they appear in the window.

Choose Print Window from the File menu, then select the Options you want in the Print dialog box and click Print.

The window's contents are printed in the format currently displayed, including items not visible on the screen.

❖ *Keyboard shortcut for printing:* You can press Return or Enter instead of clicking Print in the Print dialog box. ❖

➤ *See also:* "Displaying a List of Items by Name, Size, Label, Kind, or Date" in Chapter 5

Printing while using the computer for other work

With the PrintMonitor program, you can print on a LaserWriter while continuing to work with one or more programs. This feature is known as *background printing.*

➤ *See also:* "Working With Several Open Programs" in Chapter 3

Preparing to use background printing

To use background printing with a LaserWriter, confirm that the PrintMonitor file is in the Extensions folder (inside the System Folder) of your startup disk and that background printing is turned on in the Chooser.

The PrintMonitor file is automatically placed in the Extensions folder when you use the Installer's Easy Install option. If PrintMonitor has not been installed, you can install it by dragging the PrintMonitor icon to the System Folder icon (the Finder will automatically put PrintMonitor into the Extensions folder). PrintMonitor is stored on the *Printing* disk supplied with system software. (See Figure 4-7.)

Figure 4-7 The PrintMonitor icon

Figure 4-8 shows the background printing control in the Chooser.

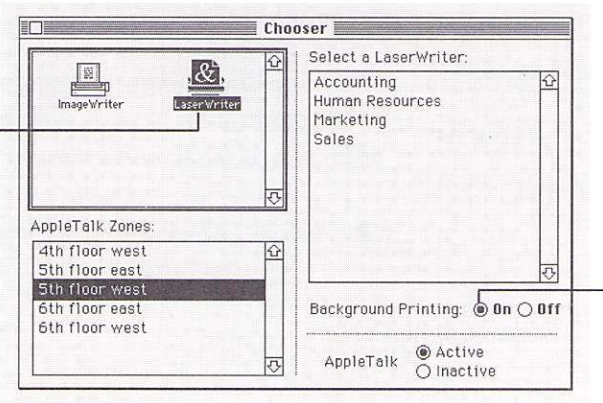


Figure 4-8 The Chooser window showing the background printing buttons

Once background printing is turned on, it is in effect whenever you print with a LaserWriter (until you turn it off).

After you choose the Print command and select options in the Print dialog box, the printing status box appears on the screen for a few seconds, then disappears. You can then continue other work. You may notice an occasional pause while the Macintosh processes the document for printing.

Managing printing jobs

You can control background printing with PrintMonitor, a program supplied with the system software. Figure 4-9 shows the PrintMonitor window.

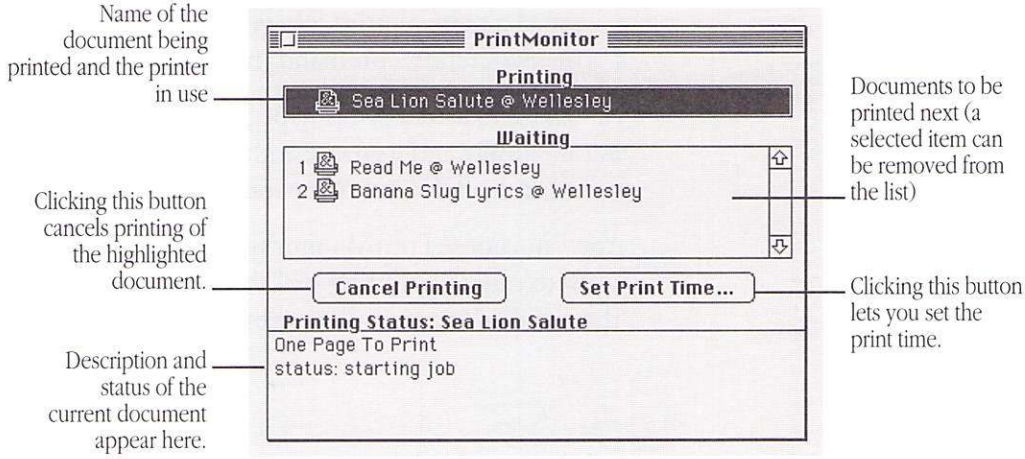


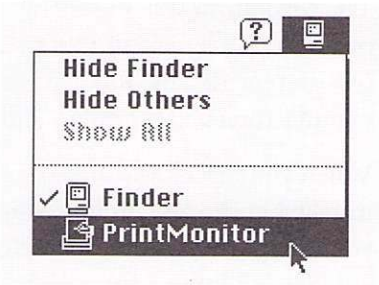
Figure 4-9 The PrintMonitor window

With PrintMonitor you can

- monitor the status of printing
- cancel a document currently printing or waiting to print
- set the time you want a document to print (date and hour) or postpone a job indefinitely
- monitor paper supply (PrintMonitor's icon blinks at the right end of the menu bar when the printer is out of paper; you can change the notification method with the Preferences command in PrintMonitor's File menu.)
- be notified when you need to feed paper manually (PrintMonitor's icon blinks at the right end of the menu bar to signal a manual print job; you can change this notification with the Preferences command in the File menu.)

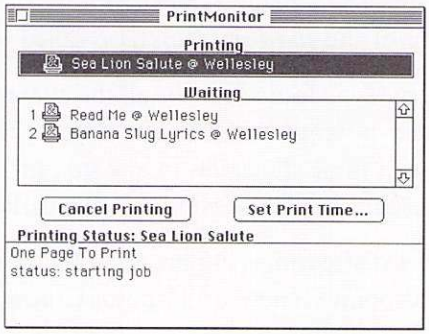
When background printing begins, PrintMonitor opens automatically and its name and icon appear in the Application menu at the right end of the menu bar.

You can choose PrintMonitor from the Application menu if you want to cancel a printing job, check the status of printing (such as the number of pages still to print), or postpone printing.



1 **After you have started printing a document, choose PrintMonitor from the Application menu.**

The PrintMonitor window opens. (PrintMonitor opens when background printing is under way, or when you double-click its icon.)



2 **Select the options you want, then click the close box.**

You can cancel printing of the current document or select one of the documents waiting to print. (The Cancel button changes to Remove from List when a waiting document is selected.)

➤ *See also:* "Working With Several Open Programs" in Chapter 3

Working with fonts

The Macintosh system software includes a selection of *fonts*—collections of letters, numbers, and symbols in a distinctive typographic design. You can get more fonts from independent manufacturers, user groups, and computer bulletin board services.

When you install Macintosh system software, a core set of fonts is installed in the System file, which is inside the System Folder of your startup disk. You can add other fonts or remove fonts. There are some additional fonts on your *Fonts* disk.

Recognizing TrueType fonts and fixed-size fonts

Two kinds of fonts are supplied with the system software—*TrueType fonts* (also called *variable-size fonts, outline fonts,* or *scalable fonts*) and *fixed-size fonts* (also called *bitmapped fonts*).

TrueType fonts describe all the characters of one font in one style, such as Courier or Courier Bold. The Macintosh can display or print these characters in any size. (TrueType fonts do not work with system software version 6.0.4 or earlier.)

Fixed-size fonts contain a set of characters of one size, such as 10-point Geneva or 24-point Chicago. To see on screen or print high-quality characters at different sizes, you need a font file for each size of character you want to use.

You distinguish TrueType and fixed-size fonts by their icons. (See Figure 4-10.)

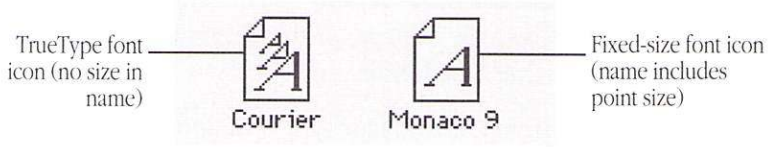


Figure 4-10 The icons for TrueType and fixed-size fonts

When you open a font icon—by double-clicking it—a window displays a sample of the font. Figure 4-11 shows the windows for Times® Plain and New York 14.

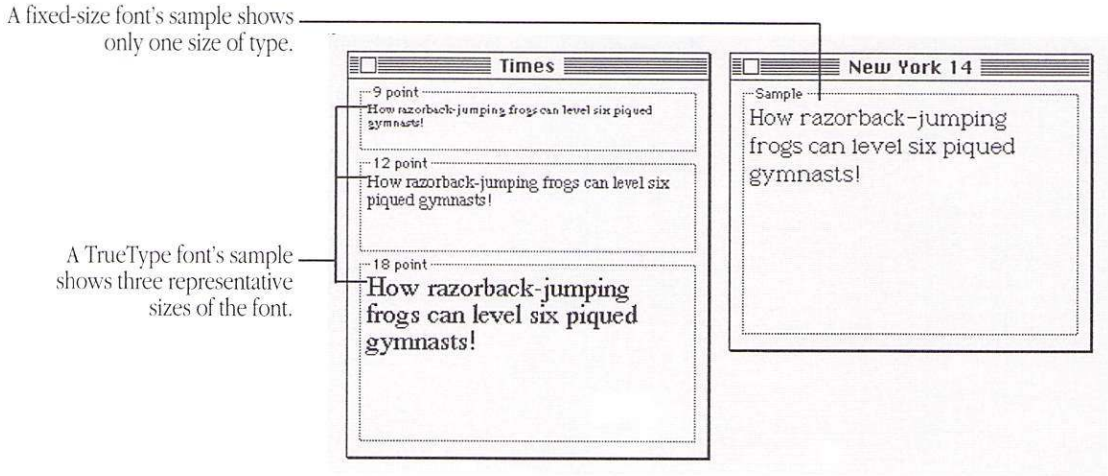


Figure 4-11 Sample text in Times plain (TrueType) and New York 14 (fixed-size)

The Macintosh can use both fixed-size and TrueType fonts at the same time. For example, you can have Times installed in your system as both a fixed-size font and a TrueType font. When you select a font size, the Macintosh first checks to see if there is a fixed-size font available. If there is no fixed-size font available, the TrueType font is used.

If you have a TrueType font and a fixed-size font with similar names (such as Courier Plain and Courier 12), and you want the Macintosh to use the TrueType font, you need to remove the fixed-sized font from your System file. This will produce a closer match between how type appears on screen and how it appears when printed. However, any existing documents you've created with the fixed-size fonts will be reformatted with the TrueType fonts, and line breaks in these documents may change.

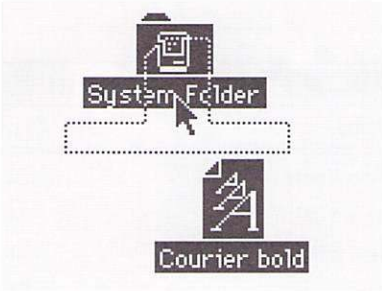
➤ *See also:* "Using Fonts With Printers and Other Peripheral Devices" later in this chapter

Installing a font

You can easily install additional fonts.

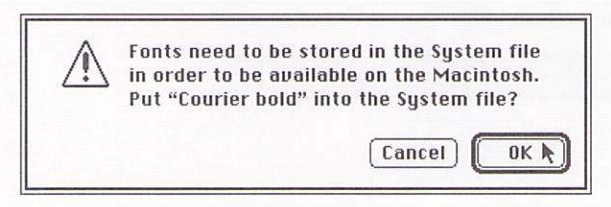
1 Quit all programs that are open.

You can't install a font when programs are open.



2 Select the icon of the font you want to install and drag it to the System Folder of your startup disk.

A dialog box appears, asking if the font should be placed inside the System file.

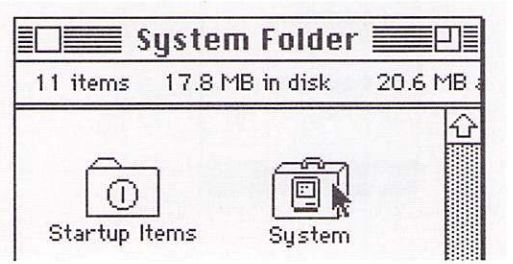


3 Click OK to complete the font installation.

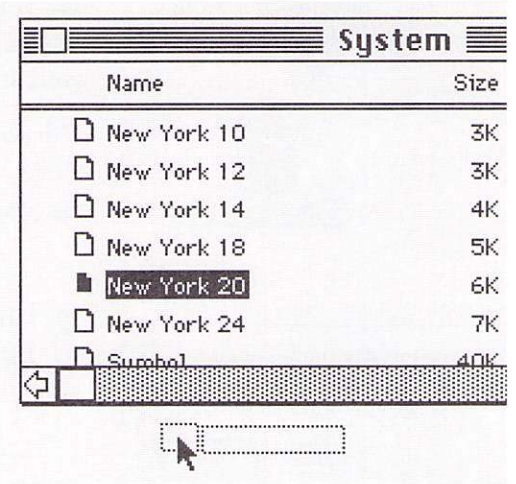
Removing a font

You remove a font by dragging its icon out of the System file (inside the System Folder) of your startup disk.

1 Open the System Folder of your startup disk by double-clicking its icon.



2 Locate the System file double-click to open it.



3 Locate the icon of the font you want to remove and drag that icon out of the System Folder.

Be sure to drag the font out of both the System file window and the System Folder window.

Using fonts with printers and other peripheral devices

When you print with a TrueType font, you automatically get the best possible print quality. If you use fixed-size fonts, you may need to install several sizes to create high-quality images with certain printers or other output devices (such as an ImageWriter or a fax modem).

Consult the documentation supplied with your printer or other output device to determine whether it has special requirements for using fixed-size fonts.

Transferring fonts to a LaserWriter printer

A LaserWriter can print a document more quickly if the fonts used in the document are stored in the printer's memory or on a hard disk attached to the printer. Some LaserWriter printers come with built-in fonts, which are stored in the printer's read-only memory (ROM). You can transfer, or *download,* additional fonts to the printer's random access memory (RAM) or to a hard disk attached to the printer.

To download a font, you use the LaserWriter Font Utility, supplied on one of the *Tidbits* disks. You can also use the LaserWriter Font Utility to:

- transfer POSTSCRIPT files from your computer to a LaserWriter printer
- see a list of fonts available to a printer
- see a printed sample of fonts available to a printer
- initialize a hard disk attached to a printer

Figure 4-12 shows the LaserWriter Font Utility's dialog box for downloading fonts.

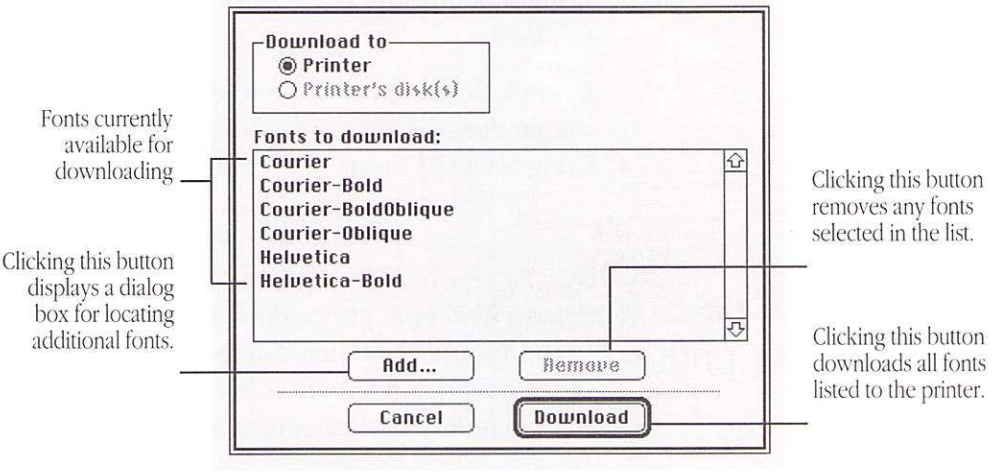


Figure 4-12 The dialog box for downloading fonts to a LaserWriter

➤ *See also:* "Turning the Printer's Sample Page On or Off" later in this chapter
"Transferring a POSTSCRIPT File to a LaserWriter" later in this chapter

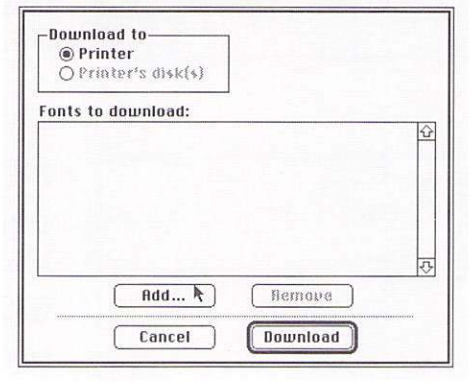
Downloading a font to the LaserWriter

You can transfer fonts to a LaserWriter printer with the LaserWriter Font Utility.

1 Double-click to start the LaserWriter Font Utility.

The program is on one of the *Tidbits* disks.

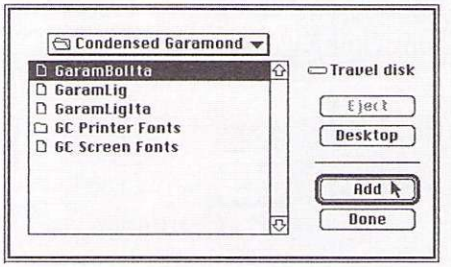
2 Choose Download Fonts from the File menu.



3 If the font you want to download is not listed, click the Add button to add fonts to the list.

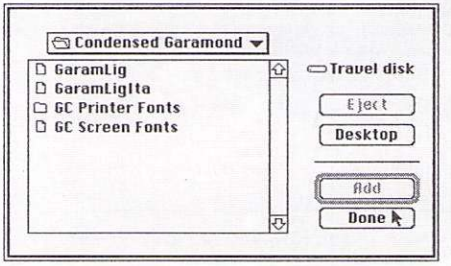
A directory dialog box appears, which you can use to locate the fonts you want.

▶



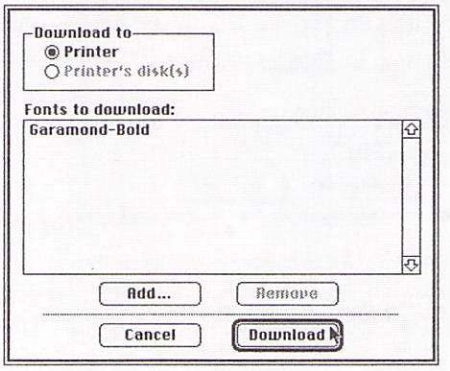
4 Click the name of the font you want, then click Add.

You can Shift-click to select more than one font.



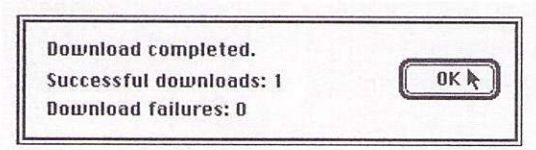
5 When you've added all the fonts you want to download, click Done.

The directory dialog box closes and the fonts you added are listed in the Font Utility dialog box.



6 Click the Download button to send all the fonts in the list to the printer or its hard disk.

When you click the Download button, a status box appears. You can click Cancel to stop the process.



7 Click OK when you see a message reporting the results of downloading.

Getting information about available fonts

The LaserWriter Font Utility provides three ways to see the fonts available to a LaserWriter. You can display a list of fonts on the screen, print a catalog of fonts, or print a set of font samples.

You choose a command from the program's File menu to get a font list or samples. Figure 4-13 shows the File menu and the commands used to see the available fonts.

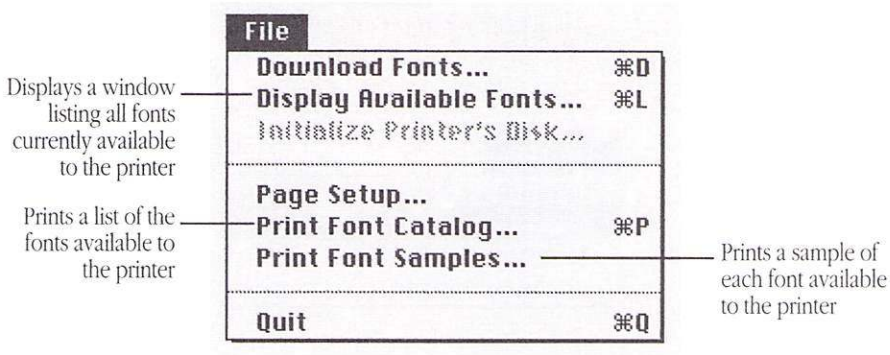


Figure 4-13 The File menu commands for listing available fonts

Controlling LaserWriter operations

If your Macintosh uses a LaserWriter printer, you can control some printer operations with the LaserWriter Font Utility, supplied with system software. You can also use this program to transfer fonts and POSTSCRIPT® files to a LaserWriter.

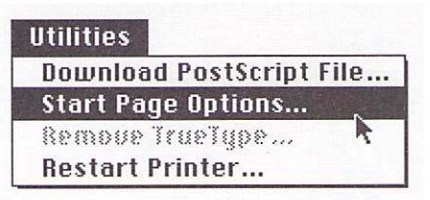
➤ *See also:* "Transferring Fonts to a LaserWriter Printer" earlier in this chapter

Turning the printer's sample page on or off

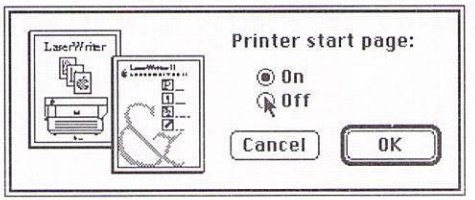
The LaserWriter prints a sample page each time it is turned on or restarted. You can turn the sample page on and off with the LaserWriter Font Utility.

1 **Double-click to start the LaserWriter Font Utility.**

The program is on one of the *Tidbits* disks.



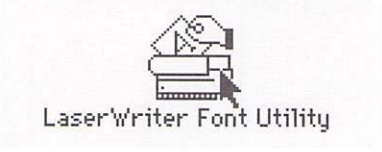
2 **Choose Start Page Options from the Utilities menu.**



3 **Click the On or Off button, then click OK to turn the sample page on or off.**

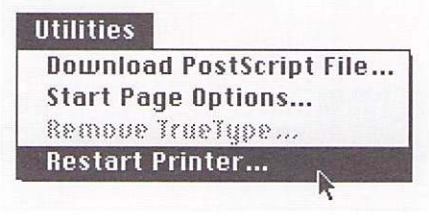
Restarting a LaserWriter printer

You can use the LaserWriter Font Utility to restart a LaserWriter printer.

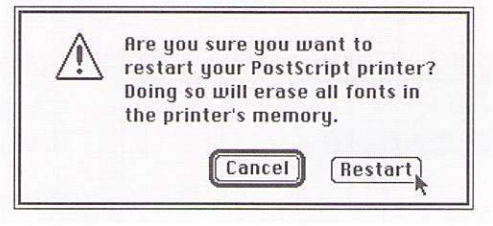


1 **Double-click to start the LaserWriter Font Utility.**

The program is on one of the *Tidbits* disks.



2 **Choose Restart Printer from the Utilities menu.**



3 **Click Restart to restart the printer.**

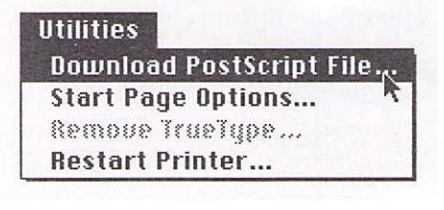
Click Cancel if you change your mind.

Transferring a POSTSCRIPT file to a LaserWriter

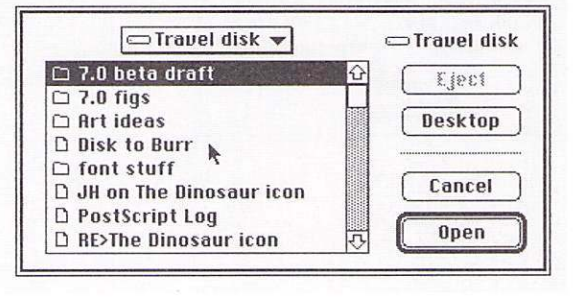
You can use the LaserWriter Font Utility to transfer a file in POSTSCRIPT format to a LaserWriter. POSTSCRIPT is a special language that describes the characters, symbols, and images in a file to be printed or displayed.

1 Double-click to start the LaserWriter Font Utility.

The program is on one of the *Tidbits* disks.

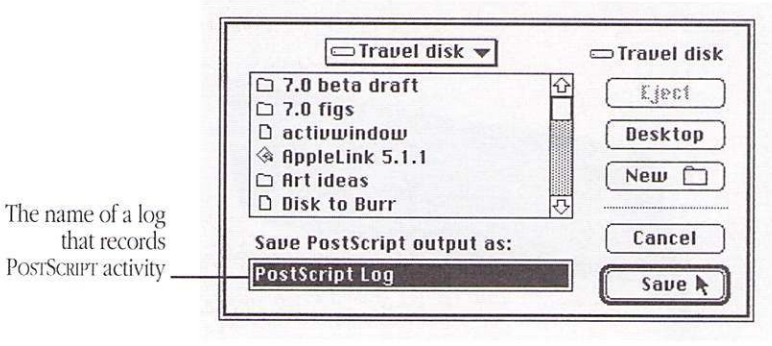


2 Choose Download POSTSCRIPT File from the Utilities menu.



3 Double-click the name of the file you want to download to the printer.

When you double-click a file's name, a second directory dialog box appears in which you name a file that saves a record of the POSTSCRIPT activity. This file has the preset name "POSTSCRIPT Log."



4 **If you wish, type a new name for the log, then click Save.**

The file is transferred to the printer and a record of the POSTSCRIPT activity is saved on your disk.

You can open the POSTSCRIPT log to see the sequence of POSTSCRIPT commands when the file was transferred.

Organizing Documents

The Macintosh desktop simulates an office filing system—with icons representing documents, folders, and even a Trash container. Other icons represent application programs, disks, and other types of files.

The computer facilitates rapid handling of information, and Macintosh system software provides a number of tools for storing and locating documents easily and efficiently.

These include

- simple methods for naming documents and folders
- a visual filing system that's easy to move through
- commands to locate items by name or attributes
- directories of files displayed in the way you want
- easy display of important information about a document

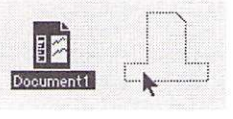
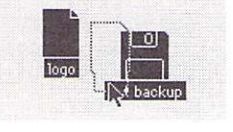
Handling documents

You use standard Macintosh operations to name and rename documents, copy them, and move their icons. In addition, you can make duplicates of any document.

Moving, copying, and renaming a document

Table 5-1 summarizes the procedures for moving, renaming, and copying documents. All these operations take place in the Finder.

Table 5-1 Moving, copying, and renaming a document

Task	Instruction	Example
Moving a document	Drag the icon of the document to the desired location.	
Copying a document onto another disk	Drag the icon of the document to the icon of the destination disk (or an open window from that disk).	
Copying a document on the same disk	1. Select the icon of the document to be copied. 2. Choose Duplicate from the File menu. 3. If you wish, rename the document or drag it to a new location.	
Renaming a document	1. Select the document's name by clicking the name (not the icon). 2. Type a new name. 3. Click anywhere outside the icon.	

- *Duplicating and copying shortcuts:* You can also use the keyboard shortcut ⌘-D to duplicate a selected document. You can copy a document into another folder (or onto the desktop) by holding down the Option key while you drag the document's icon to the location you want. The new document's name stays the same in this copying method. ❖

Copying items while using the computer for other work

When you're working in the active window of an application program, you can copy files "in the background"—that is, while continuing to work in the program.

To use background copying, you simply switch from the program's active window to the Finder and initiate the copying operation as usual. Once copying begins, you can switch back to the application program and resume work as your files are copied. You can't start a new application program while copying is in progress, however.

Straightening up icons on the desktop or in a Finder window

The Clean Up command rearranges icons on the desktop or in a Finder window. This command isn't available for windows displaying items in a list view.

Figure 5-1 shows the Clean Up command for both the desktop and the active Finder window.

The wording of the Clean Up command varies.

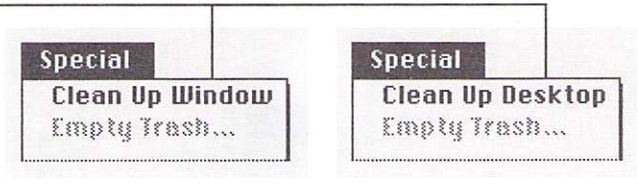


Figure 5-1 The Clean Up command for a Finder window and for the desktop

- *Special cleanup options:* When cleaning up a window, holding down the Option key sorts and arranges the icons alphabetically by name or using the list view displayed most recently in that window. It also moves the icons to the top left of the window. When cleaning up the desktop, holding down the Option key lines up all icons at the right side of the screen. Holding down the Shift key while choosing the Clean Up command cleans up the selected items only. ❖

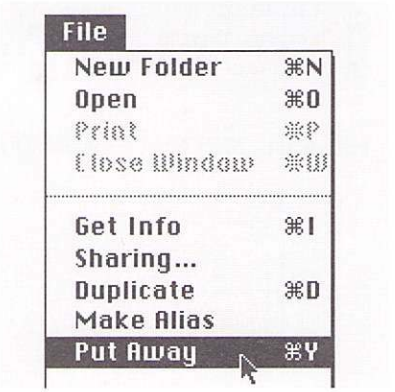
➤ *See also:* "Using Special Keys and Indicators on the Keyboard" in Chapter 1
"Changing the Layout of Icons on the Desktop" in Chapter 7

Putting away items on the desktop

A convenient way to use a program, document, or folder is to drag its icon out of a Finder window onto the desktop. Then the icon stays on the desktop until you remove the disk on which the program, document, or folder actually is stored.

If you've placed an icon on the desktop, you can replace it in its original location quickly and easily with the Put Away command.

1 **To put an item away, first select its icon.**



2 **Choose Put Away from the File menu.**

The selected item disappears from the desktop and is put back where it came from. (You can make sure that the item has been put away by looking in its original location.)

Using folders to organize your work

Like traditional filing systems, the Macintosh uses folders to store and organize documents. You can easily place folders inside one another to create multiple levels of files.

Figure 5-2 shows an example of a floppy disk that contains three levels of folders.

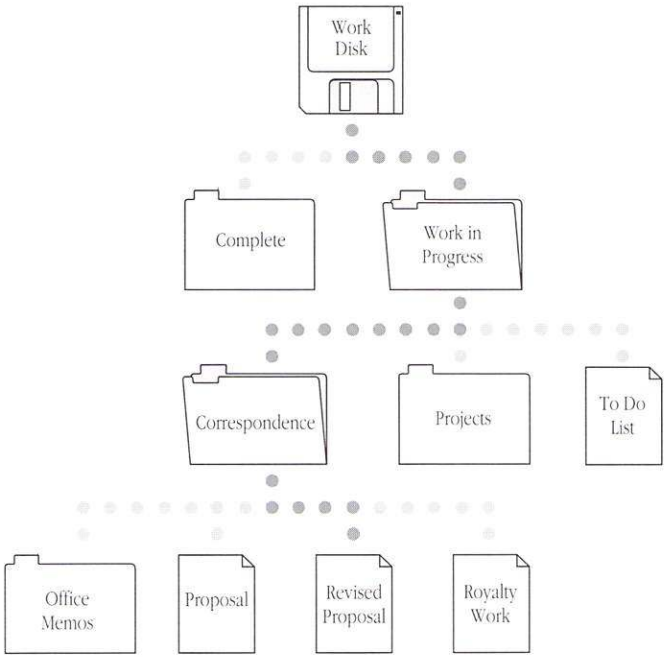
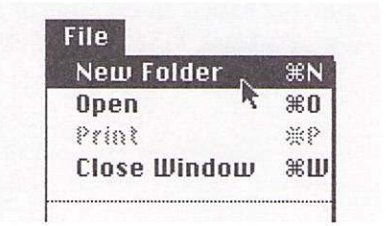


Figure 5-2 Three levels of folders and documents on a floppy disk

Whether you're using a hard disk or a floppy disk for your files, you can establish an efficient filing system with folders.

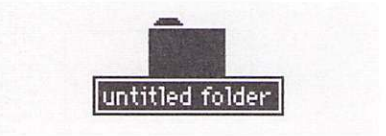
Creating and naming folders

You use the New Folder command to create a new folder when you're working in the Finder.



1 Choose New Folder from the File menu.

A new folder named "untitled folder" appears in the active window (or on the desktop). The name is selected for editing.



2 Type a name for the folder.

3 Click anywhere outside the folder icon.

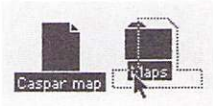
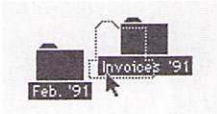
You can press Return after typing a name instead of clicking outside it; the icon remains selected in this case.

- *Keyboard shortcut for folders:* You can also use the keyboard shortcut ⌘-N to create a new folder. ❖
- New folders on the desktop and in a directory dialog box: You can create a folder directly on the desktop—first click the desktop to make the desktop active. Many programs allow you to create a new folder when you're using a directory dialog box. ❖

Summary: Placing a document or a folder inside a folder

You drag documents or folders to place them in folders. Table 5-2 summarizes the procedures for placing a document or a folder inside a folder.

Table 5-2 Placing a document or a folder inside a folder

Task	Instruction	Example
Placing a document in a folder	Drag the icon of document to the icon of the folder.	
Placing a folder inside another folder	Drag the icon of the folder to the icon of the folder you want to put it in.	

You can store folders inside other folders—called *nesting folders*—to create many levels of storage.

Using an alias for easy access to a file

The Macintosh system software can create an *alias* for a document, a folder, a program, a disk, or even the Trash. An alias has the same icon as the original file, and it is given the same name, with "alias" added at the end. (You can change the name.) The name of an alias is displayed in italics, except in the Apple menu.

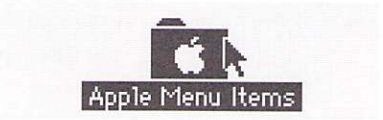
An alias is not a copy of the original file; it is a tiny file (about 1–2K in size) that points to the original. When you open an alias, the original file actually opens. You can make any number of aliases for an original file.

Aliases help you get quick access to programs and files. You can have multiple representatives of a document, folder, or program in various places on your disk.

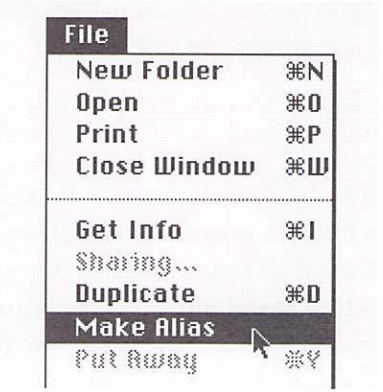
One alias is provided when the standard Macintosh system software is installed—an alias of the folder containing the control panels is placed in the Apple menu for easy access. (The original Control Panels folder is in the System Folder.)

Creating an alias

Creating an alias is a simple procedure.

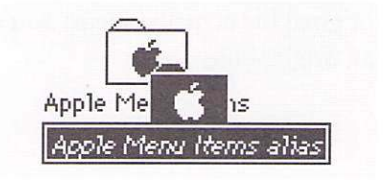


1 **Select the item for which you want to make an alias.**



2 **Choose Make Alias from the File menu.**

The alias appears next to the original. Its name is in italics and ends with "alias." The name is selected for editing.



3 **If you wish, change the name of the alias, then move it to a new location.**

Table 5-3 summarizes some good ways to use aliases.

Table 5-3 Uses of aliases

Alias for	Location	Purpose
Any document or folder that could be stored in several places	Every part of your filing system where that item logically fits	Access to key information from several places
Apple Menu Items folder	On the desktop	Easy way to put items into or take items out of the Apple menu
A program that must be located with associated files	On the desktop; in the Apple menu	Starting the program without opening the folder or disk in which the original and its associated files are located
A document or folder stored on a separate archive disk	Anywhere on your primary disk or disks	When opened, the alias displays a message with the name of the disk needed, then opens the original when the disk is inserted.
A program, document, or folder on a file server	Anywhere on your primary disk or disks	When opened, the alias automatically finds and opens its original on the server, essentially creating an automatic server connection.

➤ *See also:* "Creating an Alias for a Program" in Chapter 3
"You Open an Alias and Nothing Happens" in Chapter 10
"Using Aliases to Connect Quickly" in Chapter 3 of the *Macintosh Networking Reference*

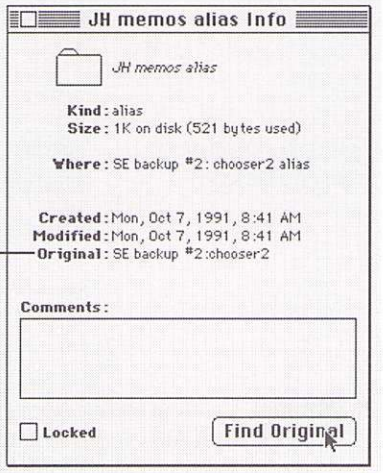
Locating the original of an alias

You can locate the original of an alias by opening the alias's Info window.

1 **Select the icon of the alias whose original you want to find.**

2 **Choose Get Info from the File menu.**

The Get Info window appears.



Location of the original—includes folders and disk name (if the original is on a different disk)

3 **Click the Find Original button.**

The window containing the original item opens; the icon of the original file is highlighted.

If you move the original item, the alias will still find it. If you delete the original, however, you'll see a message reporting that the original can't be found. Aliases are not moved or deleted when the original files are moved or deleted.

❖ *Keyboard shortcut for Info window:* You can use the keyboard shortcut ⌘-I to display the Info window for any selected icon. ❖

➤ *See also:* "Creating an Alias for a Program" in Chapter 3
"You Open an Alias and Nothing Happens" in Chapter 10

Locating documents, folders, and programs

Macintosh system software provides built-in searching for documents and folders on any disk currently in use. The Find command lets you select criteria for the item or items to be located. You can search all disks in use, one disk, the contents of a window, or the current selection.

Finding items by name with the Find command

When you choose the Find command, it locates and displays the first item whose name contains the text you supply. It searches all available disks.

A related command, Find Again, displays the next item meeting the criteria you specified. You can use this command repeatedly to find all items containing the search text; if no such item is found, you hear an alert sound.

Figure 5-3 shows the Find dialog box. You see the expanded Find dialog box if you used that last.

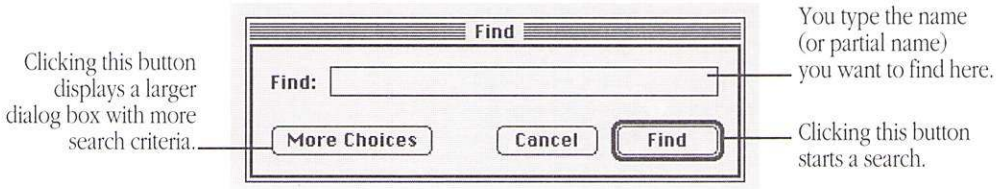


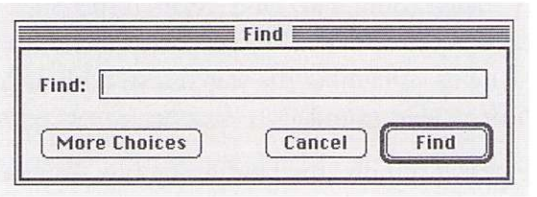
Figure 5-3 The dialog box for the Find command

The Find command locates all items meeting the search criteria and displays the first item. You can display each successive item found with the Find Again command.

The Find command cannot locate items inside the System file (such as fonts and sounds). You must open the System file to see its contents.

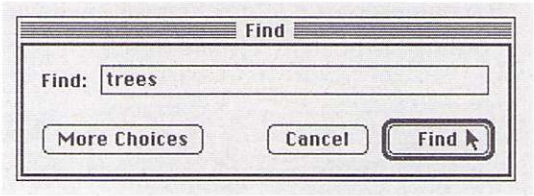
1 Choose Find from the File menu.

The Find dialog box appears, with a blinking insertion point or with the text you last entered, if you've used the command already. (If you used the expanded Find dialog box recently, that dialog box appears. Click Fewer Choices to return to the Find dialog box.)



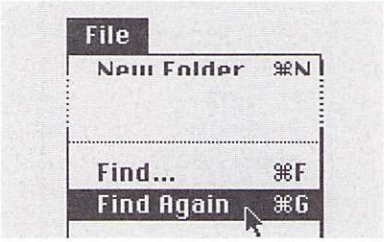
2 Type the text you want to search for.

You don't have to match uppercase and lowercase letters.



3 Click the Find button to begin the search.

The search proceeds and the first item is displayed. If you hear the alert sound, that means no items were found.



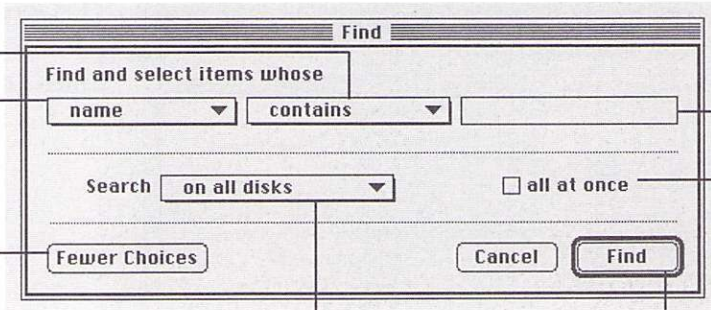
4 If you don't see the item you want, choose Find Again from the File menu to display the next item found.

If you hear the alert sound, that means all items have been displayed.

❖ *Keyboard shortcuts for Find and Find Again:* You can also use the keyboard shortcuts ⌘-F to open the Find dialog box and ⌘-G to display the next item found in a search. ❖

Using other criteria for the Find command

The expanded Find dialog box lets you set criteria for searching your files. Figure 5-4 shows the dialog box in which you can adjust the search criteria.



Pop-up menus of search criteria

Clicking this button goes back to the small Find dialog box, which searches for names only.

You type search text here; when the search item is a date, an adjustable date appears.

Option to display search results all at once (instead of one at a time)

Options for search location (pop-up menu)

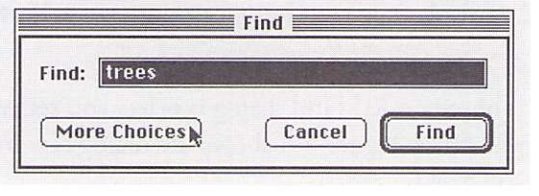
Clicking this button begins the search.

Figure 5-4 The expanded Find dialog box for setting search criteria

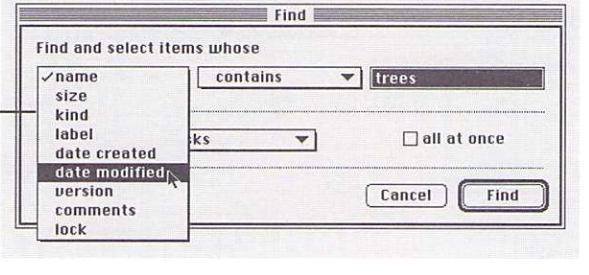
The contents of the middle pop-up menu and the text area vary according to the item selected in the left pop-up menu.

1 **Choose Find from the File menu.**

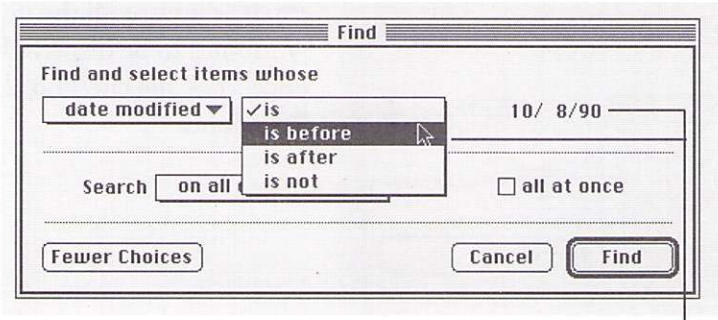
The Find dialog box appears. (If you used the expanded Find dialog box recently, that dialog box appears.)



2 **Click More Choices to display the expanded Find dialog box.**

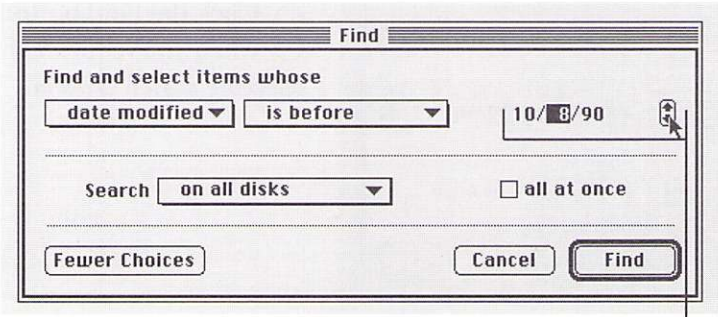


3 **Open the left pop-up menu and choose the item for which you want to search.**



The contents of the middle pop-up menu and the text area change according to the item selected in the left pop-up menu.

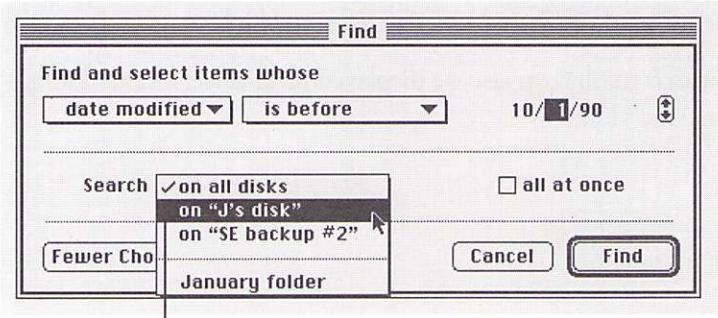
4 Open the middle pop-up menu and choose the item you want.



Clicking a number selects it for adjustment; clicking the up or down arrow changes the selected number.

5 Adjust the date, choose an item, or enter the search text in the upper-right area of the dialog box.

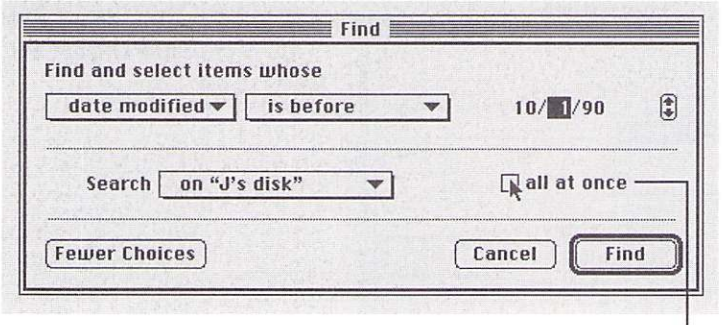
The item selected in the left pop-up menu determines what action you need to take.



Disk selected for searching

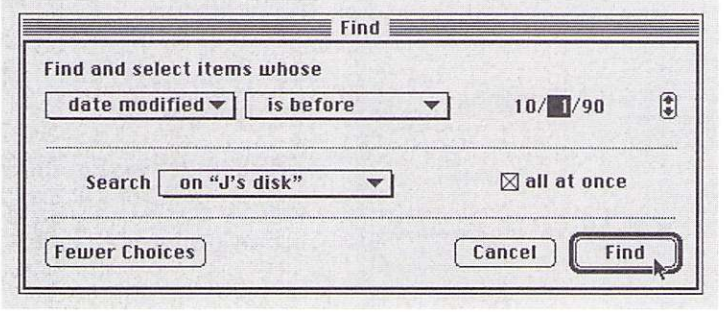
6 Choose a search location from the pop-up menu labeled "Search."

You can choose to search all disks, a specific disk, the active Finder window, or selected items.



Clicking this box displays all search results at once, selected in a list view. This option is not available when the "Search" selection is "all disks."

7 If you want all the items found to be displayed at once, click the checkbox labeled "all at once."



8 Click the Find button when you've finished selecting search criteria.

When search results are displayed one at a time, the first one is highlighted and displayed on the screen at the end of the search. Each successive item can be displayed with the Find Again command (in the File menu), or with the keyboard shortcut ⌘-G.

Search results can also be displayed all at once. These results appear in a list view.

Figure 5-5 shows the results of a search for items that were modified before May 1, 1990.

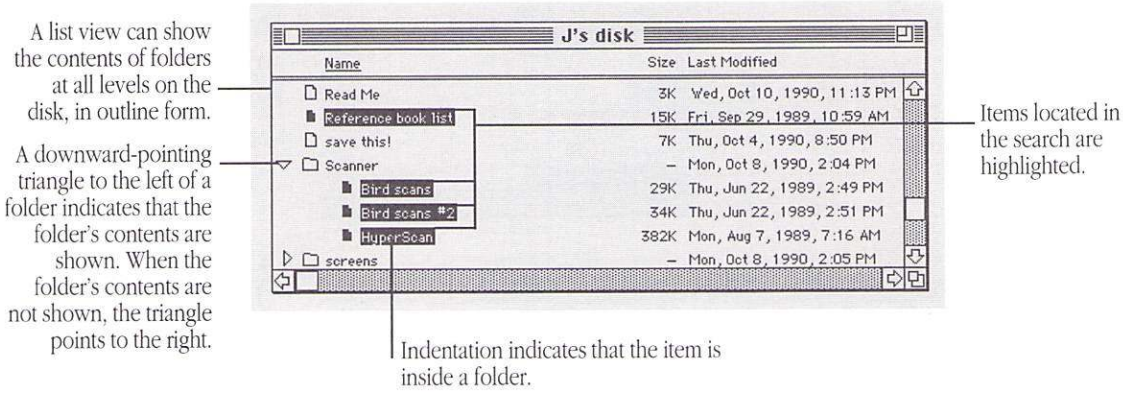
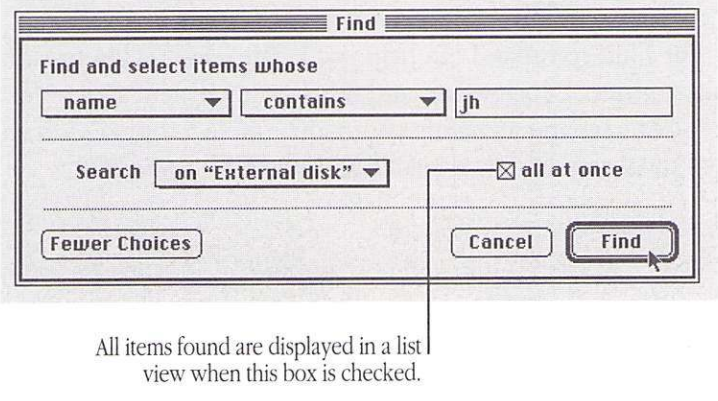


Figure 5-5 All-at-once search results displayed in an outline view

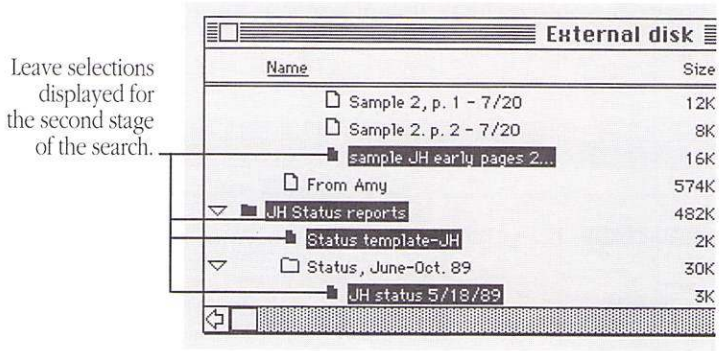
Making a two-stage search with the Find command

You can use two different sets of criteria and locate one group of items that meet those criteria. To do this, you make a two-stage search, like the one summarized in the steps that follow.



1 Establish the first set of criteria, making sure that you check the "all at once" box in the expanded Find dialog box, then click Find.

Checking "all at once" displays results of the search in a list view; the items that were found are highlighted.



2 Choose the Find command again, before you click or take any other action.

You choose Find before taking any other action so the items located in the first stage of the search remain highlighted.

This option limits the search to the items currently selected.

3 Set the second set of criteria, choose "the selected items" in the Search pop-up menu, then click Find to begin the second stage of your search.

The search will be limited to the items found in the first stage, and only those meeting both sets of criteria will be highlighted.

Special ways to use the Find command

The Find command can help you locate files quickly, organize large quantities of documents, and develop an efficient system for backing up and archiving your work. Table 5-4 presents some uses of the search criteria available with the Find command.

Table 5-4 Sample uses of the Find command

Search criterion	Can be used to locate
Name	1. Files whose names you can't recall exactly 2. All items for which you use a standard name, such as status reports or expense reports
Kind	1. All application programs 2. All aliases
Size	Large files, to make space available on a disk
Label	All the files to which you added the same label (such as "top secret")
Lock	Locked files, to unlock them for editing
Modification date	All files changed since a certain date, for regular backup of new and changed files
Creation date	All files created before a certain date, for archiving or erasing outdated material

➤ *See also:* "Using a List View to See Several Levels of Files" later in this chapter

Moving quickly through levels of folders on a disk

You can get quick access to other levels of folders on a disk from a pop-up menu available in the active window on the desktop and in the directory dialog box of an application program. In addition, the list view of a window's contents provides access to items in any folder inside the window.

Moving through levels of folders with a pop-up menu

You can use the pop-up menu in a Finder window to move quickly to a higher level of your filing system. To get access to the pop-up menu, hold down the ⌘ key while you press the name of the active window. (See Figure 5-6.)

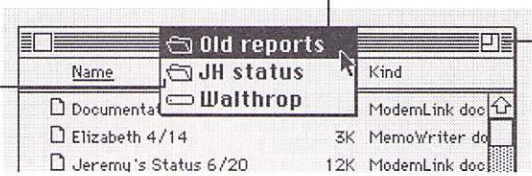
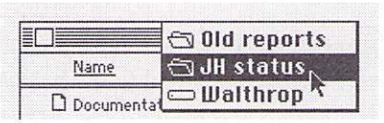


Figure 5-6 A pop-up menu in the title bar of a Finder window

Choosing an item from the menu opens that window and makes it active.

1 Hold down the ⌘ key, then open the pop-up menu by pointing to the window title and holding down the mouse button.



2 Drag the pointer to the name of the folder or disk that you want to open.

When you release the button, the corresponding window opens.

- *Closing a window while moving to a new level:* When you hold down the Option key (as well as the ⌘ key) and choose a name from the pop-up menu, the new window opens, and the window that was active closes. ❖

When you're working in a program, the directory dialog box used to open or save documents also has a pop-up menu that lets you open a different folder. (See Figure 5-7.)

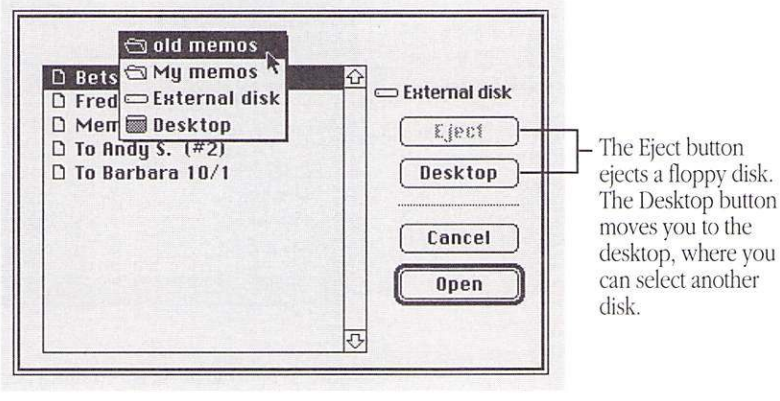


Figure 5-7 Open pop-up menu in a program's directory dialog box

You can also use a directory dialog box to change disks.

➤ *See also:* "Using a Directory Dialog Box" in Chapter 1

Using a list view to see several levels of files

When a window's contents are displayed in a list view, you can move to any folder, document, or program stored within the current window. You can also select items in different folders simultaneously.

Figure 5-8 shows the outline format of a list view.

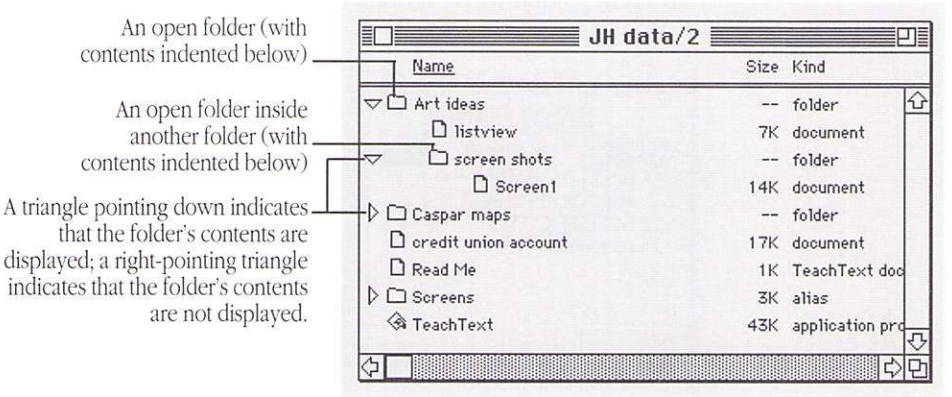
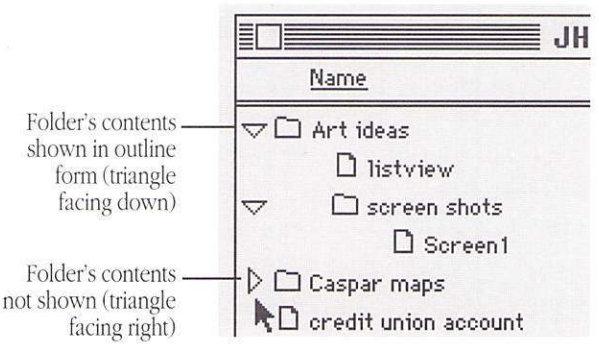


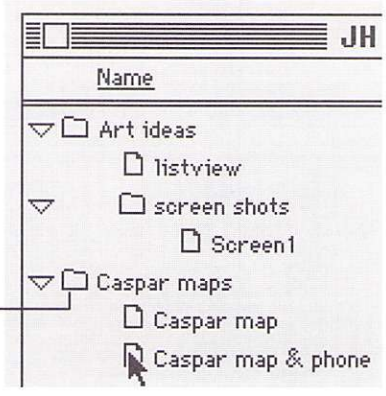
Figure 5-8 Outline view of a disk's contents

The list view lets you display the contents of a folder in the current window and open items.



1 Click the triangle next to a folder name to display the folder's contents.

The folder's contents appear in an indented list.



Folder whose contents have just been displayed

2 Double-click the icon of the item you want to open.

You may have to move through several levels of folders before locating the document or program you want to open.

If you double-click a folder, it opens in a separate window, and its outline view closes.

When you open a folder, document, or program by double-clicking its icon in the outline view, its window becomes the active window.

- *Outline view shortcuts:* When a folder is selected in an outline view, pressing ⌘–Right Arrow expands the folder (lists its contents) and ⌘–Left Arrow collapses the list of folder contents. ❖

Using folders inside the System Folder

The Macintosh system software manages a number of special files that are stored inside the System Folder of a startup disk. These include small programs that give your system special functionality (these files are known as system extensions and control panels), fonts, sounds, files of preferences for application programs, and drivers for printers, scanners, and other devices.

Because there can be many special files inside the System Folder, these files are placed in folders named for the function they perform. Figure 5-9 shows the folders inside the System Folder as they appear after you use the Installer program to install system software. (Some of the items shown, such as the Clipboard file, appear only after you have used the related command or desk acccessory.)

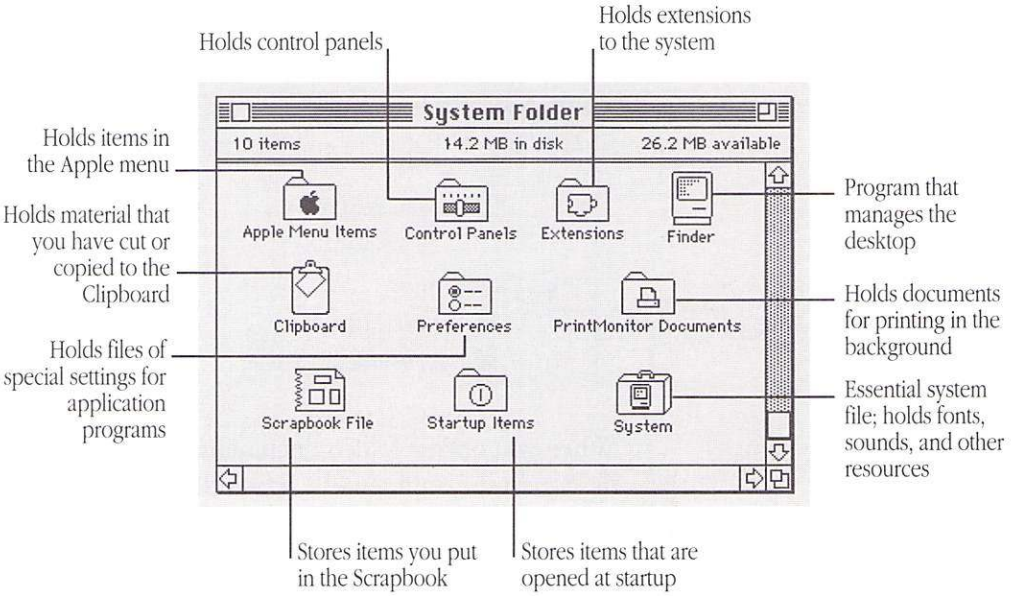


Figure 5-9 Items inside the System Folder of the startup disk

➤ *See also:* "Using an Alias for Easy Access to a File" earlier in this chapter
"Specifying Items to Be Opened at Startup" in Chapter 2
"Putting a Program or Its Alias in the Apple Menu" in Chapter 3
"Working With Desk Accessories" in Chapter 3
"Printing While Using the Computer for Other Work" in Chapter 4
"Working With Fonts" in Chapter 4
"Customizing the Apple Menu" in Chapter 7
"Getting Quick Access to Control Panels" in Chapter 7

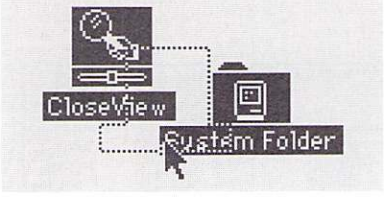
Putting an item in the System Folder

The System Folder is designed to recognize the types of files it uses and to place those files in the appropriate folders.

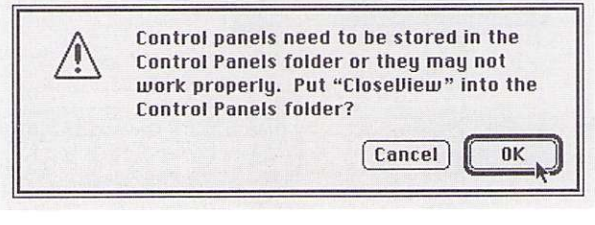
△ **Important:** To take advantage of this capability, you must drag items to the icon of the System Folder, not to the open window.

If you drag an item to the open System Folder window, the item moves into the System Folder but is not placed in the special folder where it belongs. Some items must be located in a special folder to work properly. △

If you are moving a document or an application program into the System Folder, you need to open the System Folder and drag the item to the folder you want to store it in (either Apple Menu Items or Startup Items).



1 Drag the item to the icon of the System Folder on the startup disk.

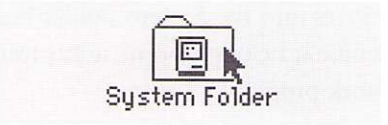


2 Read the message to confirm that the item will be placed where you want it, then click OK.

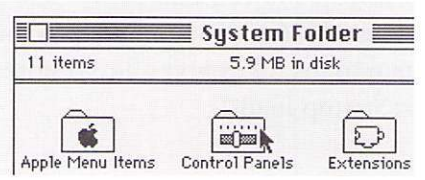
Removing an item from the System Folder

To remove an item from the System Folder, you need to know where the item is stored.

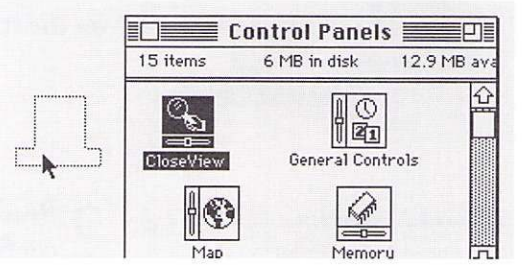
If you don't know which folder holds the item you want to remove, you can locate the item using the Find command. (The Find command cannot locate items inside the System file, however.)



1 **Double-click the icon of the System Folder to open it.**



2 **Double-click the folder containing the item you want to remove.**



3 **Drag the item out of the System Folder.**

Be sure to drag the item both out of its special folder and out of the System Folder.

➤ *See also:* "Finding Items by Name With the Find Command" earlier in this chapter

Getting information about documents and disks

The Macintosh provides quick access to details about the documents and disks it manages.

The View menu, which is always available when you're using the Finder, offers several different ways to view the contents of a disk or folder. Two other commands—Get Info and About This Macintosh—present details about individual items.

Displaying a list of items by name, size, label, kind, or date

Using the View menu, you can display the contents of a window by icon or small icon, or you can list them according to name, size, kind, date, or label. Figure 5-10 shows a list view arranged by name.

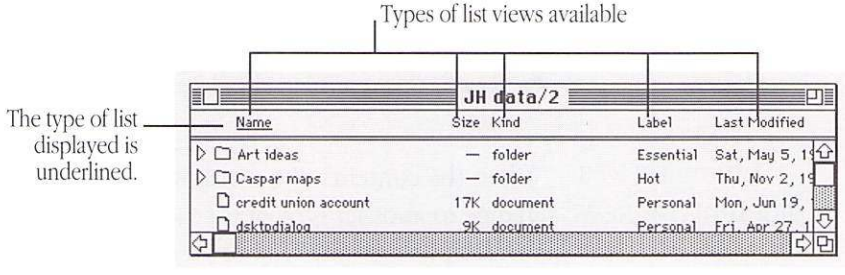
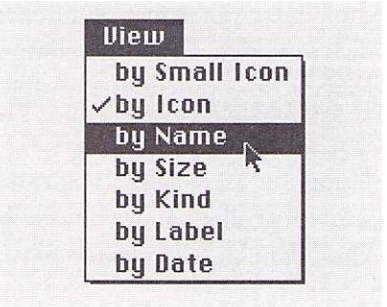


Figure 5-10 A list view with items arranged by name

The Macintosh system software is preset to show items by icon. This view is useful when you want to move and select icons frequently.

A list arranged by name, size, kind of item, label, or date is useful when one of those attributes is the key information you need about the items in the window. For example, listing documents by the date and time of their most recent modification makes backing up a large number of files an orderly task.

The list view's outline format also lets you select items in different folders simultaneously.



Pull down the View menu and drag to choose one of the views available.

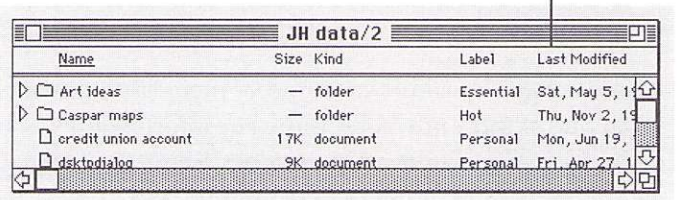
The list views are Name, Size, Kind, Label, and Date. You can add other views by selecting them in the Views control panel.

➤ *See also:* "Customizing How Icons and List Views Appear" in Chapter 7

Changing to a different list view

When the contents of a window are displayed as a list, you can change to another type of list view without using the View menu. You simply click the type of view you want at the top of the window.

Clicking this title arranges the items by date.



Click the type of view you want to display at the top of the window.

The list is sorted when you release the mouse button.

➤ *See also:* "Customizing How Icons and List Views Appear" in Chapter 7

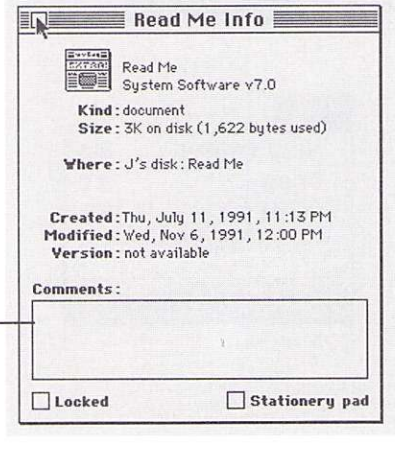
Getting information about a document

The Get Info command displays information about a single item on the desktop or in a Finder window.

1 To get information, first select the icon for which you want details.

2 Choose Get Info from the File menu.

The Info window appears, displaying information about the selected icon.



Text area for adding comments (you can search for comments with the Find command)

3 Click the close box to close the Info window when you're finished.

You can add comments to the Info window and later search for them with the Find command.

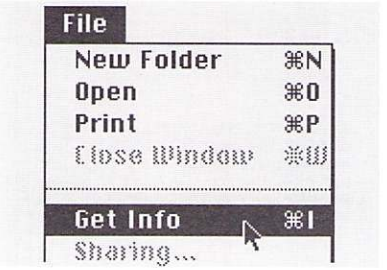
- *Get Info shortcut:* You can use the keyboard shortcut ⌘-I to display information about the selected item. ❖
- *Other uses for the Info window:* You can also use the Info window to change an icon, to turn a document into a stationery pad, and to lock a document (prevent it from being changed or erased). ❖

➤ *See also:* "Using Other Criteria for the Find Command" earlier in this chapter
"Creating Document Templates" in Chapter 3
"Protecting Information on a Disk" in Chapter 6
"Changing the Appearance of Icons" in Chapter 7

Getting information about an application program

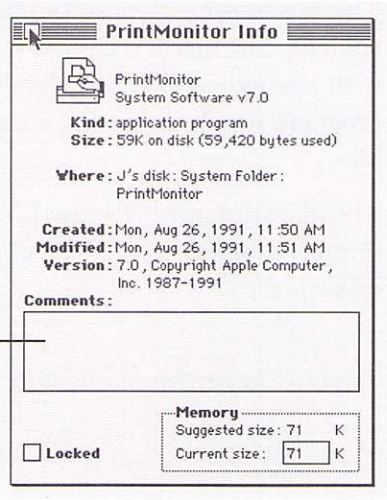
You can use the Get Info command in the File menu to get information about an application program.

1 Select the icon of the program about which you want information.



2 Choose Get Info from File menu.

The Info window opens.



Text area for adding comments (you can search for comments with the Find command)

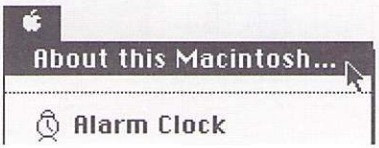
3 **Click the close box to close the Info window when you're finished.**

You can use the Info window to adjust the memory allocated for a program and to lock the program (which prevents it from being thrown away).

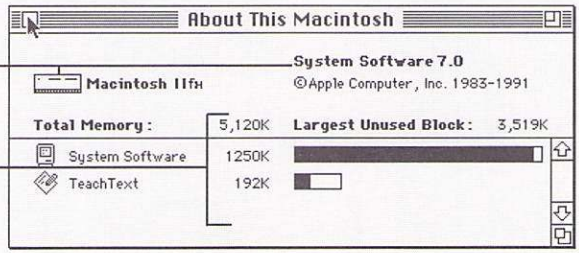
➤ *See also:* "Changing the Amount of Memory a Program Uses" in Chapter 3
"Protecting Information on a Disk" in Chapter 6
"Changing the Appearance of Icons" in Chapter 7

Getting information about your Macintosh

When you're working in the Finder, the About This Macintosh command in the Apple menu displays information about your Macintosh, including memory usage.



1 **Choose About This Macintosh from the Apple menu when you're working in the Finder.**



Model and system software version

Memory allocated and memory currently in use (dark shading)

2 **Click the close box to close the About This Macintosh window when you're finished.**

➤ *See also:* "Managing System Memory" in Chapter 3

Taking a "snapshot" of the screen

The Macintosh system software can take an image of the screen's content. The image is created as a *PICT file,* which can be used with a variety of programs that handle graphics. The TeachText program, supplied with the system software, can also open these files.

The files are named "Picture 1," "Picture 2," and so on. (The number of screen images you can take is limited only by available disk space.)

Taking a screen snapshot

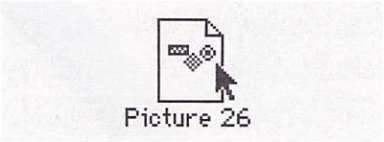
You use a keystroke combination to take a picture of the screen.

Hold down the ⌘, Shift, and number 3 keys simultaneously.

You hear a click and a new icon appears in the window of the startup disk.

Viewing a screen snapshot with TeachText

You open a screen image the usual way with TeachText.



Double-click the icon of the screen image you want to open.

You can also drag to select a portion of a PICT file displayed in TeachText and then copy that selection to the Scrapbook or to another document. The size of the selection you can copy in TeachText depends on the amount of memory you allocate to the program.

- *Other ways to work with screen images:* You can open a screen image with any program that can work with the PICT format by dragging the icon of the document to the icon of the program, or by opening the document from within the program. ❖

➤ ***See also:*** "Changing the Amount of Memory a Program Uses" in Chapter 3

6

Managing Disks and Disk Drives

Disks are the Macintosh computer's principal storage medium. Every Macintosh model has at least one internal floppy disk drive, and most models offer an internal hard disk as well.

The system software and most applications are supplied on 3.5-inch floppy disks, which are ideal for transporting data and backing up important work.

Hard disks offer the advantages of large storage capacity and speed of operation, although they are not as easily transported as floppy disks.

Using floppy disks

The floppy disks used in a Macintosh are flexible plastic disks (the source of the name "floppy") inside a hard plastic case 3.5 inches wide. A metal shutter at one end of the disk slides to one side when the disk is in the drive, exposing the flexible plastic on which information is stored. The plastic is coated with a magnetic layer, similar to the recording tape in tape cassettes.

Disk capacities

The amount of information a floppy disk can store depends on the type of disk drive in which it is used and on the way the disk is *initialized*—that is, the way its magnetic surface is electronically prepared to store data.

Macintosh disks have one of three capacities:

- 400 kilobytes (K)
- 800K
- 1.4 megabytes (MB)

Consult the *Special Options and Technical Information* booklet or other documentation that came with your computer to learn more about the floppy disks your Macintosh can use.

High-density disks and SuperDrive

Disks with a capacity of 1.4 MB are *high-density* disks and can be used in the Apple SuperDrive high-density disk drive. High-density disks usually have the letters "HD" on their case or metal shutter. High-density disks also have an extra hole in the plastic case (on the opposite side from the disk-locking tab), which allows the SuperDrive to recognize them.

△ **Important:** Use high-density disks in the SuperDrive only. You cannot use these disks in drives that accept only 800K or 400K disks. (See Figure 6-1.) △

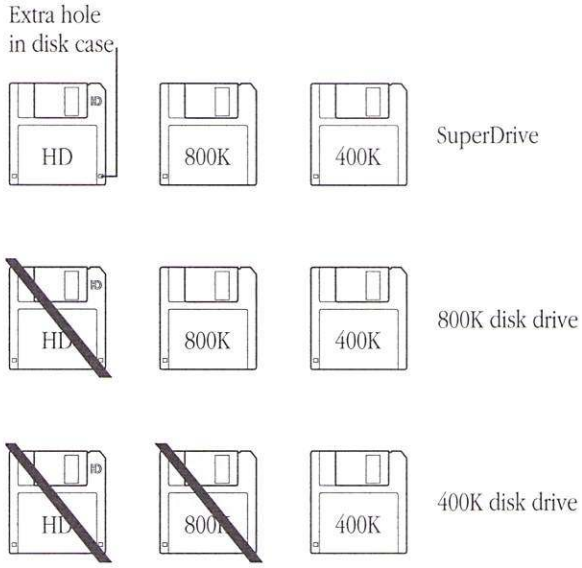
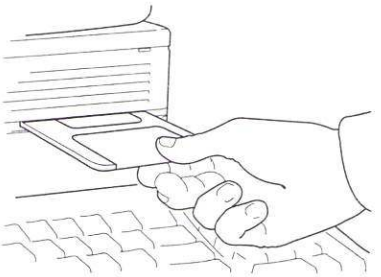


Figure 6-1 Proper use of floppy disks

The SuperDrive accepts all three types of floppy disks—400K, 800K, and 1.4 MB. This disk drive can also read 3.5-inch disks from computers that use the MS-DOS operating system.

➤ *See also:* "Locking a Floppy Disk" later in this chapter
"Floppy Disks and Drives" in Chapter 9
Appendix C, "Exchanging Disks and Files With MS-DOS Computers"

Inserting a floppy disk



Hold the disk metal end first and label side up, and slide it into the disk drive.

The disk snaps into place and its icon appears on the screen or a dialog box reports that the disk is unreadable.

➤ *See also:* "Preparing and Naming a New Floppy Disk" later in this chapter
"Testing and Repairing a Disk" in Chapter 9

Ejecting a disk from the desktop

You can easily eject a floppy disk and remove its icon from the desktop. This method also works for ejecting a CD-ROM disc or disconnecting from a shared disk on the network.

1 **Select the icon of the disk you want to eject.**

2 **Choose Put Away from the File menu.**

The disk is ejected and its icon disappears from the desktop.

❖ *Shortcut for ejecting a disk:* You can also eject a disk by dragging its icon to the Trash icon. (Dragging a disk to the Trash does not erase the disk's contents.). ❖

Table 6-1 summarizes the methods for ejecting a floppy disk.

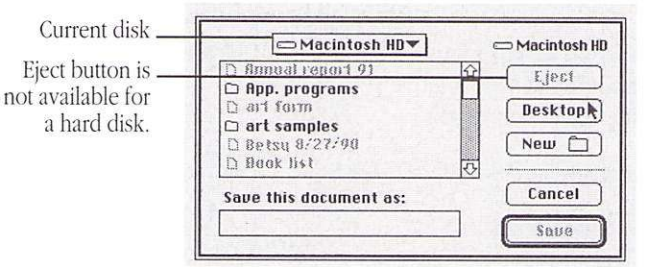
Table 6-1 Summary of ways to eject a floppy disk

Method	Result
Selecting the disk icon and choosing Put Away from the File menu (shortcut: ⌘-Y)	Disk is ejected; icon disappears
Dragging the disk icon to the Trash	Disk is ejected; icon disappears
Selecting the disk icon and choosing Eject Disk from the Special menu (shortcut: ⌘-E)	Disk is ejected; dimmed icon stays on the desktop

➤ *See also:* "Preparing and Naming a New Floppy Disk" later in this chapter
"Testing and Repairing a Disk" in Chapter 9
"You Can't Eject a Floppy Disk" in Chapter 10

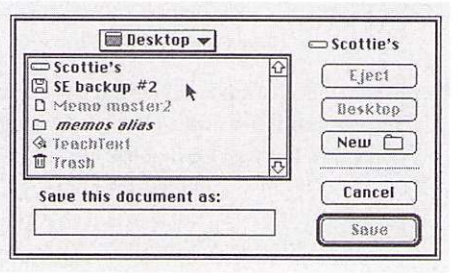
Ejecting a disk from within a program

You can eject a disk when you're working in a program by using a command, such as Open or Save As, that displays a directory dialog box.



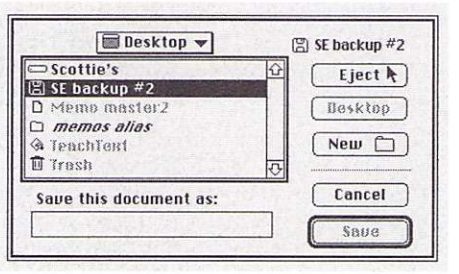
1 With the directory dialog box displayed, click the Desktop button to locate the disk you want to eject.

Skip this step if the disk named in the box is the one you want.



2 Click the name of the disk you want to eject.

The Eject button becomes available when a floppy disk or CD-ROM disc is selected.



3 Click the Eject button to eject the selected disk.

The disk is ejected. Its dimmed icon stays on the desktop.

➤ *See also:* "Preparing and Naming a New Floppy Disk" (next section)
"Testing and Repairing a Disk" in Chapter 9
"You Can't Eject a Floppy Disk" in Chapter 10

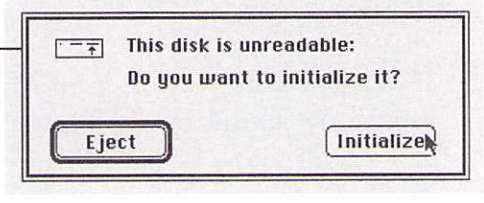
Preparing and naming a new floppy disk

When you want to use a brand-new disk, you need to prepare it to receive information. This process is called *initialization,* or *formatting.* If a disk already contains data, initializing it erases that data.

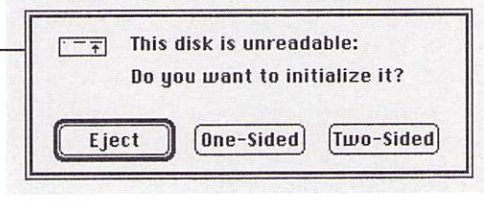
You name a disk when you initialize it.

▲ **Warning:** Be sure that any disk you plan to initialize contains no information you want to save, because you'll lose that information during initialization. ▲

Message for a high-density disk



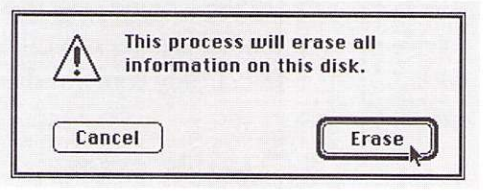
Message for a normal density disk (one-sided is 400K, two-sided is 800K)



1 **After placing a new disk in the disk drive, click Initialize (for a high-density disk), Two-Sided (for an 800K disk), or One-Sided (for a 400K disk).**

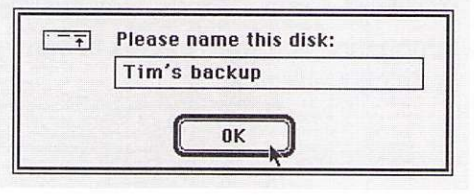
If the disk has been used with another type of computer, the message will tell you that the disk is not a Macintosh disk.

▶



2 Click the Erase button to continue initialization.

You can click Cancel to avoid erasing the disk.



3 Type the name you want for the disk and click OK.

Initialization proceeds, and the disk icon appears on the desktop.

If you don't name the disk, it will have the name "Untitled." You can rename the disk by clicking its name and typing a new one.

➤ *See also:* Appendix C, "Exchanging Disks and Files With MS-DOS Computers"

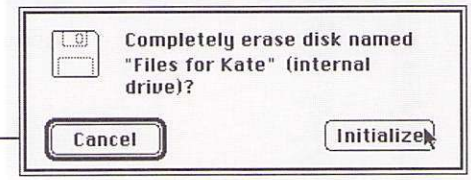
Erasing a disk

To erase an already initialized disk, use the Erase Disk command in the Special menu. This command actually reinitializes the disk.

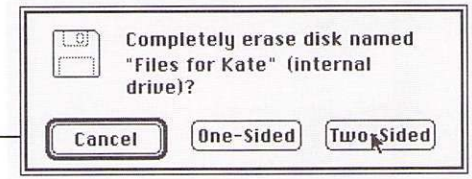
1 **Select the icon of the disk you want to erase.**

2 **Choose Erase Disk from the Special menu.**

A message appears, asking you to confirm the action. If you're erasing a normal-density disk, you need to select the capacity of the disk.



Options for a high-density disk



Options for a normal-density disk (one-sided is 400K, two-sided is 800K)

3 **Click Initialize or click the button for the disk capacity you want.**

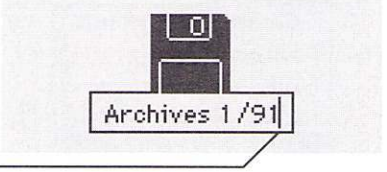
The disk is erased and reinitialized. Its name stays the same.

Renaming a disk

You can easily rename a disk, just as you would rename any icon on the desktop.

1 Click the name (not the icon) of the disk you want to rename.

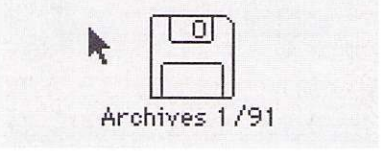
A box appears around the name and the text is selected.



Insertion point (blinking)

2 Type a new name for the disk.

The insertion point blinks at the end of the text you type.



3 Click anywhere outside the disk icon.

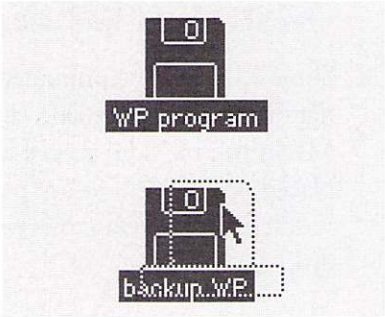
When you click, the new name is saved and the icon is no longer selected.

Making a backup copy of a disk

Although floppy disks are designed to last through thousands of hours of use, they can become damaged or worn. So it's wise to make backup copies of important work and application programs.

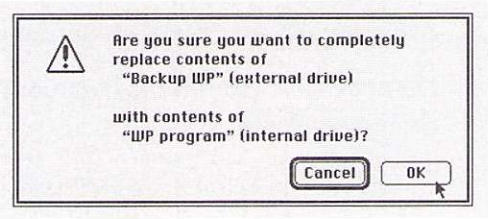
You can make backup copies of individual documents as necessary. You should also back up such essential disks as startup disks, system software master disks, and program master disks.

1 To make a backup copy, first point to the icon of the floppy disk you want to back up (the *source disk*).



2 Drag the icon of the floppy disk you want to back up to the icon of the disk on which the copy will be made (the *destination disk*).

The destination disk can be a floppy disk (as pictured) or a hard disk. If the destination disk is a floppy disk, a message appears.



3 Read the message to make sure you're making the correct decision, then click OK to begin the backup procedure.

If you click Cancel rather than OK, no backup takes place.

➤ *See also:* "Preparing and Naming a New Floppy Disk" earlier in this chapter
"Backing Up the Information on a Hard Disk" later in this chapter

Using a hard disk

A hard disk drive consists of metal disks permanently sealed inside a drive compartment. The drive's sealed environment permits extremely fast reading and writing of information, and the multiple disks inside a drive store 20 to 160 megabytes of information, or even more.

Hard disk precautions

Because the components inside a hard disk drive are very close together and moving very fast when the drive is turned on, these drives should be handled with care.

Observe these precautions when working with a hard disk:

- Avoid jostling or rough handling of the drive (and of any Macintosh with an internal hard disk). Never move a Macintosh when the internal hard disk drive is operating.
- Some Macintosh computers are designed to operate either sitting flat or turned on one side. The setup guide that came with your Macintosh includes special instructions if your model can be placed on its side. Do not place the computer on its side unless it is designed to operate this way; doing so could damage the hard disk.
- Always keep the drive on a sturdy, level surface.
- Operate a hard disk at temperatures between 50 and 104 degrees Fahrenheit and at a relative humidity of 20 to 80 percent.
- Avoid spilling any liquids on or near the drive.
- Do not expose the drive to hazardous vapors, such as those from cleaning solvents.

Preparing a new hard disk

You use the Apple HD SC Setup program, supplied with your system software (on the *Disk Tools* disk), to prepare a new hard disk. Apple HD SC Setup lets you initialize the disk (prepare it to store information) and give it a name.

The internal hard disks in many Macintosh models are prepared at the factory; these hard disks do not have to be initialized again. If the disk in your computer has been initialized, you'll see the disk's icon on the desktop when you first turn on the computer. (See Figure 6-2.)

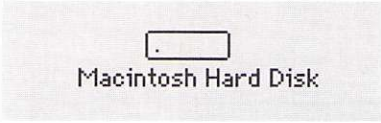


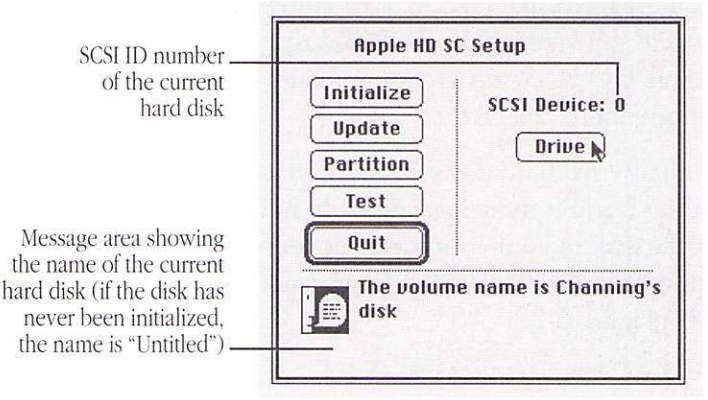
Figure 6-2 The icon for a Macintosh hard disk

▲ **Warning:** If you received a hard disk with the A/UX operating system on it, *do not* initialize that disk; doing so will erase A/UX. Instead, see your A/UX documentation for instructions. ▲

1 **To initialize a hard disk, start Apple HD SC Setup by double-clicking its icon.**

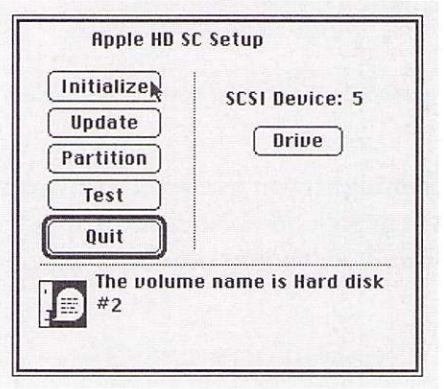
A dialog box appears.

▶



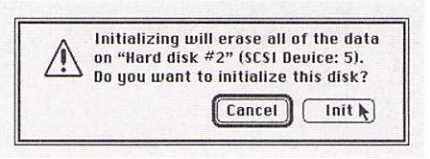
2 If the disk you want is not shown, click the Drive button to select the disk you want to initialize.

The SCSI ID number of the selected hard disk is displayed above the Drive button. The ID number of an internal hard disk is 0. The ID number of an Apple external hard disk is preset to 5.



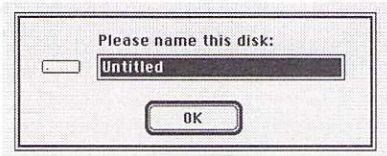
3 When the number (and name, if any) of the hard disk you want is displayed, click Initialize to begin.

A message appears asking you to confirm your decision.



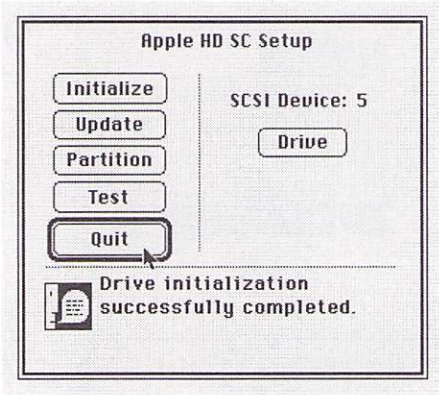
4 Click Init to initialize the hard disk.

Messages report the status of initialization. (If you see a message that initialization has failed, try again. If initialization fails a second time, see your authorized Apple service provider.)



5 **Type a name for the hard disk, then click OK.**

If the disk has been initialized previously, this dialog box does not appear.



6 **Click Quit when the message reports that initialization was successful.**

➤ *See also:* "Setting the SCSI ID Number" in Chapter 8
"Testing and Repairing a Disk" in Chapter 9

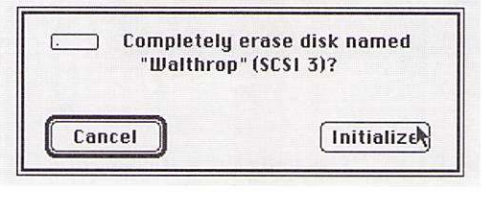
Erasing a hard disk

You can erase a hard disk using the Erase Disk command. This command reinitializes the disk.

1 **To erase a hard disk, first select the icon of the disk you want to erase.**

2 **Choose Erase Disk from the Special menu.**

A message appears, asking you to confirm that you want to initialize the disk.



3 **Click the Initialize button.**

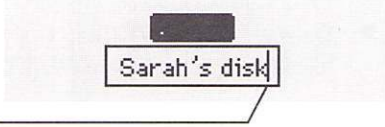
Clicking Cancel stops the procedure.

Renaming a hard disk

You rename a hard disk just as you do any icon on the desktop.

1 Click the name (not the icon) of the hard disk you want to rename.

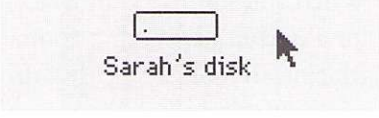
A box appears around the name when it's selected.



Insertion point (blinking)

2 Type a new name for the disk.

The insertion point blinks at the end of the text you type.



3 Click anywhere outside the disk icon.

The new name is saved, and the icon is no longer selected.

△ **Important:** You can't rename a hard disk that is being used for file sharing. △

Backing up the information on a hard disk

You can back up the work you store on a hard disk by copying individual files in the usual way (dragging their icons to the icon of another disk).

You can also use a commercial backup program to copy some or all files from a hard disk to another hard disk, to a tape drive, or to a series of floppy disks.

Whatever method you use, be sure to back up important files and programs on your hard disk regularly.

➤ *See also:* "Making a Backup Copy of a Disk" earlier in this chapter
"Backing Up the Session's Work" in Chapter 3

Startup disk sequence

When you start up your Macintosh, it looks in attached disk drives for a startup disk (a disk containing a System Folder). The Macintosh looks at the disk drives in order. This is called the *scanning order.* The computer always looks first in the floppy disk drives, then it looks at external and internal hard disks.

You can specify which hard disk the Macintosh checks first by using the Startup Disk control panel.

The scanning order for a startup disk

The Macintosh scans disk drives for a startup disk in the following order:

- internal floppy disk drive
- second internal floppy disk drive (if any)
- external floppy disk drive (if any)
- hard disk selected in the Startup Disk control panel
- internal SCSI hard disk (the computer waits a few seconds for the internal drive to warm up)
- external SCSI hard disk (if there is more than one, it looks first at the hard disk with highest SCSI ID number, and so on in descending order)
- internal hard disk (the computer returns to this drive and waits another few seconds)

If no startup disk is found, the computer displays a blinking question mark on a floppy disk icon and waits for a startup disk to be inserted in a floppy disk drive.

If you use one or more external hard disks with your Macintosh, you need to turn those drives on a few seconds before you turn on the computer; otherwise the computer will not recognize them.

➤ *See also:* "Specifying Items to Be Opened at Startup" in Chapter 2
"Setting the SCSI ID Number" in Chapter 8

Designating a startup disk

If you use more than one hard disk with your Macintosh, you'll save time during startup if you specify which one is the startup disk. You use the Startup Disk control panel for this task. (See Figure 6-3.)

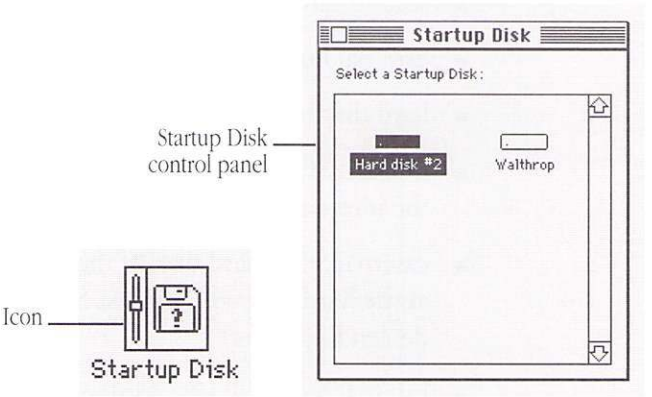
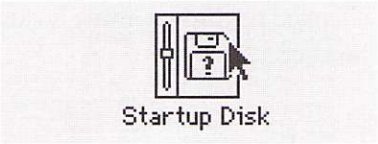


Figure 6-3 The icon and window of the Startup Disk control panel

When you designate a startup disk, the computer looks at that hard disk first for a System Folder, and uses that System Folder to start up.



1 Double-click the icon of the Startup Disk control panel to open it.

It's located in the Control Panels folder, which you can open from the Apple menu.

2 Click the icon of the disk you want to use as the startup disk.

It's a good idea to close the control panel when you're finished.

The next time you start up the computer, it uses the hard disk you specified as the startup disk, if that disk contains a System Folder and if no floppy disk with a System Folder is inserted. If the hard disk does not contain a working System Folder, the Macintosh goes on to check other hard disk drives, if any are attached.

- *Skipping the internal hard disk at startup:* You can skip the internal hard disk in your Macintosh at startup by pressing ⌘-Option-Shift-Delete when the computer starts up. ❖

Protecting information on a disk

You can protect all the information on a floppy disk by locking the disk itself, or you can lock individual documents and application programs in their Info windows.

The information in a locked document or on a locked disk can't be changed or thrown away; it can usually be opened or copied, however.

Locking a floppy disk

You adjust a tab on the disk's plastic case to lock it. Figure 6-4 shows this tab in both the unlocked and locked positions.

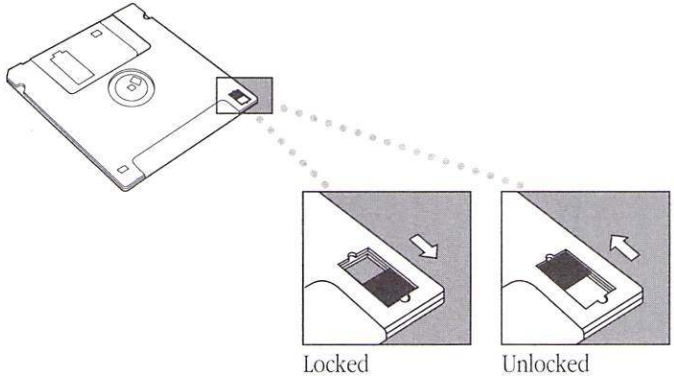
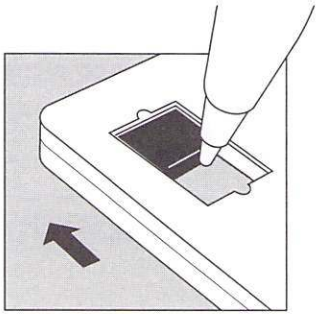


Figure 6-4 Tab positions for locking and unlocking a floppy disk



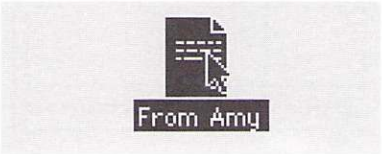
To lock a floppy disk, slide the tab toward the edge of the disk with the tip of a ballpoint pen (or your finger).

The disk is locked when the tab snaps into position and you can see through the hole in the disk's case.

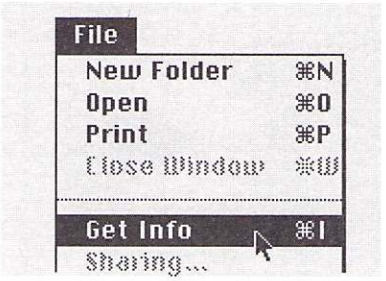
Sliding the tab away from the disk's edge (covering the opening in the case) unlocks a floppy disk.

Locking a document or program

You use the Get Info command to lock a document or lock a program.

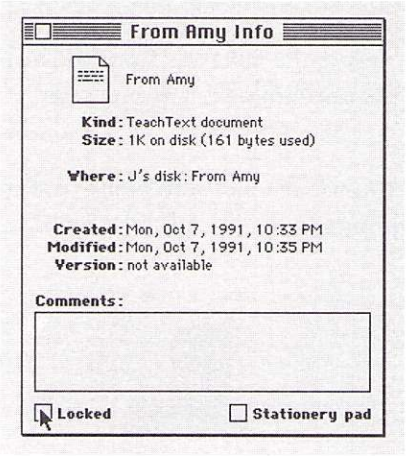


1 **To lock an item, first select its icon.**

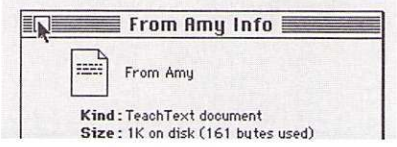


2 Choose Get Info from the file menu.

The Info window opens.



3 Click the Locked box in the lower-left corner.



4 Click the close box to close the Info window.

The item is now locked.

- *Deleting a locked item:* You can delete a locked item by dragging it to the Trash, then holding down the Option key while choosing the Empty Trash command from the Special menu. ❖

Locking a program may affect its operation.

- *Locking folders:* You can't use Get Info to lock folders; however, you can lock the items in a folder, and you can protect the contents of folders you're sharing on a network. ❖
- *Locking an alias:* You can lock an alias, but that does not lock the original file. It just prevents the alias from being thrown away accidentally. ❖

➤ ***See also:*** "Reducing Access to Your Macintosh" in Chapter 4 of the *Macintosh Networking Reference*
"Access Privileges," Chapter 5 of the *Macintosh Networking Reference*

7

Customizing Your Macintosh

The Macintosh is designed to let you adjust some aspects of its operation and its screen's appearance. You can customize such things as

- mouse operation
- keyboard operation
- sound and volume
- time and date
- the look of the desktop
- colors or shades of gray displayed on your monitor
- fonts and sounds used in the system

Most of these adjustments are made using control panels. Some use desk accessories or other parts of the system software supplied with the Macintosh. Screen brightness is adjusted with the hardware on some models of the Macintosh.

As you make adjustments in the control panels and other parts of system software, keep in mind that you can get on-screen descriptions of the windows, icons, menu items, and dialog boxes by turning on the balloons in the Help menu.

➤ *See also:* "Turning Balloon Help On and Off" in Chapter 1

Customizing the Apple menu

The Apple menu provides quick access to files that you use frequently—programs, desk accessories, documents, folders, and even aliases for disks or file servers. You can add any number of items to this menu, and you can easily remove items from it.

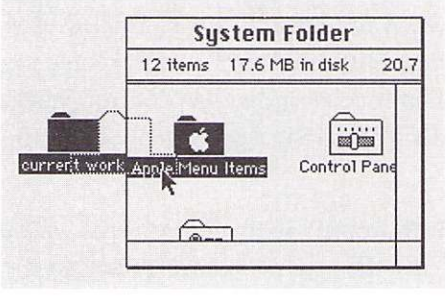
When you install the system software, the Alarm Clock, Calculator, Chooser, Control Panels folder, Key Caps, Note Pad, Puzzle, and Scrapbook are placed in the Apple menu. If your model of the Macintosh has a special desk accessory (such as the Battery for the Macintosh Portable), this may also be placed in the Apple menu when you install the system software.

Once an item is in the Apple menu, you simply choose its name from that menu to open it.

➤ *See also:* "Using an Alias for Easy Access to a File" in Chapter 5

Adding items to the Apple menu

You add items to the Apple menu by dragging their icons to the Apple Menu Items folder, which is stored inside the System Folder of your startup disk.



Drag the items you want to add to the Apple Menu Items folder (inside the System Folder).

The items are added to the menu immediately.

You can confirm that the items have been added by pulling down the Apple menu.

To remove items from the Apple menu, drag their icons out of the Apple Menu Items folder.

- *Apple menu shortcut:* If you frequently add items to or remove items from the Apple menu, you can get at the Apple Menu Items folder more quickly if you create an alias for the folder and place it on the desktop. ❖

Using control panels

Several control panels are provided with the system software. Each control panel lets you customize one part of your system.

Getting quick access to control panels

An alias for the Control Panels folder is placed in the Apple menu when system software is installed. If you use a control panel frequently and want even speedier access to it, you can make an alias for that individual control panel and place the alias on the desktop, in the Apple menu, or in another convenient place.

△ **Important:** To avoid problems with the control panels, be sure to leave the original control panels in the System Folder, inside the Control Panels folder. △

You open a control panel by choosing Control Panels from the Apple menu and then double-clicking the control panel's icon or by selecting the icon and choosing Open from the File menu.

➤ *See also:* "Adding Items to the Apple Menu" earlier in this chapter
"Using Control Panels" in Chapter 1
"Putting a Program or Its Alias in the Apple Menu" in Chapter 3
"Using an Alias for Easy Access to a File" in Chapter 5
"Selecting a Network Connection" in Chapter 2 of the *Macintosh Networking Reference*
"Monitoring File Sharing Activity" in Chapter 4 of the *Macintosh Networking Reference*

Adjusting mouse operation

You can modify two aspects of mouse operation—pointer movement and double-clicking speed—in the Mouse control panel. Figure 7-1 shows the icon for the Mouse control panel and its open window.

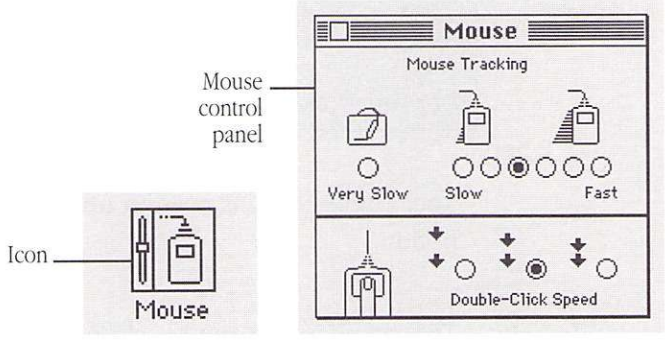


Figure 7-1 The Mouse control panel and its icon

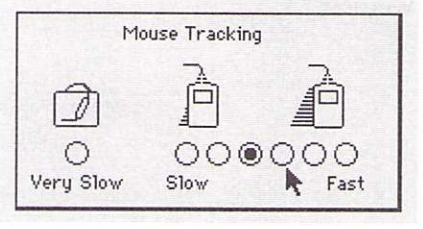
Adjusting the speed of pointer movement

The correlation between mouse and pointer movement, called *mouse tracking,* can be adjusted so that the pointer moves the same distance on the screen as the mouse moves, or so that the pointer moves farther on the screen than the mouse moves, depending on how fast you move the mouse.

Mouse tracking is preset to a medium speed when you install the system software. The options for tracking are:

- Slow—the mouse and the pointer move approximately the same distance
- Fast—the pointer moves more than twice as far as the mouse
- Buttons between Slow and Fast—gradations between the slow and fast speeds
- Very Slow/Tablet—the pointer moves at a constant speed when the mouse is moved, a useful setting for drawing with the mouse or using a graphics tablet

To adjust mouse tracking, choose Control Panels from the Apple menu and then double-click the Mouse control panel to open it.



Click the button for the tracking option you want.

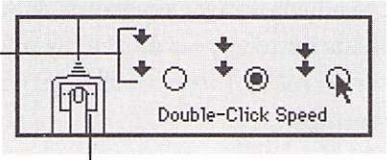
The new tracking option takes effect immediately; you can test it by moving the mouse.

Your choice remains in effect until you choose a different tracking option.

Setting the double-clicking speed

You can adjust the double-clicking speed of the mouse button. You'll probably want to do this if you find that the computer often interprets two clicks as a double click, or a double click as two single clicks.

To adjust the double-clicking speed, choose Control Panels from the Apple menu and then double-click the Mouse control panel to open it.



Click the double-clicking speed you want.

When you click, the mouse button on the screen is highlighted twice at the interval you selected.

If the Macintosh tends to interpret two clicks as a double click, choose a faster speed. If it interprets a double click as two single clicks, choose a slower speed.

Your choice remains in effect until you choose a different double-clicking speed.

Adjusting keyboard operation

You can adjust the rate at which a character repeats when its key is held down as well as the delay before the character begins repeating. You can also change the keyboard layout.

You make these adjustments in the Keyboard control panel. Figure 7-2 shows the the icon for the Keyboard control panel and its open window.

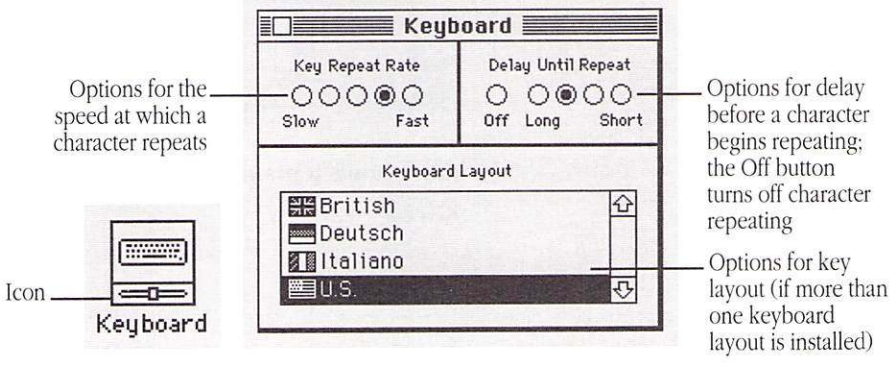
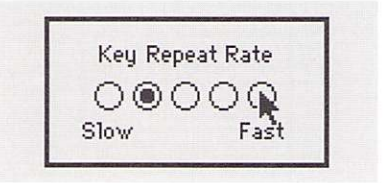


Figure 7-2 The Keyboard control panel and its icon

Setting the speed at which a key repeats

On all Macintosh keyboards, holding down a key causes the character to appear repeatedly on the screen until you release the key. (This isn't true for all keys.) You can adjust the rate of repetition.

To adjust the speed at which a key repeats, choose Control Panels from the Apple menu and then double-click the Keyboard control panel to open it.



Click the button for the repeat rate you want.

After you close the control panel, your choice remains in effect until you choose a different key repeat rate.

Setting the delay before characters repeat

You can adjust the keyboard's sensitivity to your "touch" by setting the delay before a character begins repeating when a key is held down. If you find that characters repeat when you don't want them to, you should adjust the keyboard's sensitivity.

To adjust the delay before keys repeat, choose Control Panels from the Apple menu and then double-click the Keyboard control panel to open it.

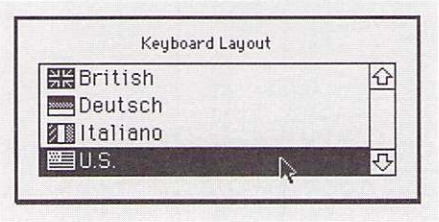
Click the button for the repeat delay you want.

Clicking the Off button turns off the character-repeat feature.

Your choice remains in effect until you choose a different delay option.

Changing keyboard layout

To change the keyboard layout, choose Control Panels from the Apple menu and then double-click the Keyboard control panel to open it. (Your Macintosh may have only one choice in the Keyboard Layout section of this control panel, depending on where you purchased it.)



Click the name of the keyboard layout you want to use.

Your choice remains in effect until you choose a different key layout.

Adjusting sound and volume

You can adjust the computer's speaker volume and change the alert sound for your Macintosh, and you can also add or remove alert sounds.

You use the Sound control panel to set the speaker volume and to choose the sound the Macintosh makes when it signals you. Figure 7-3 shows the Sound control panel's icon and its open window.

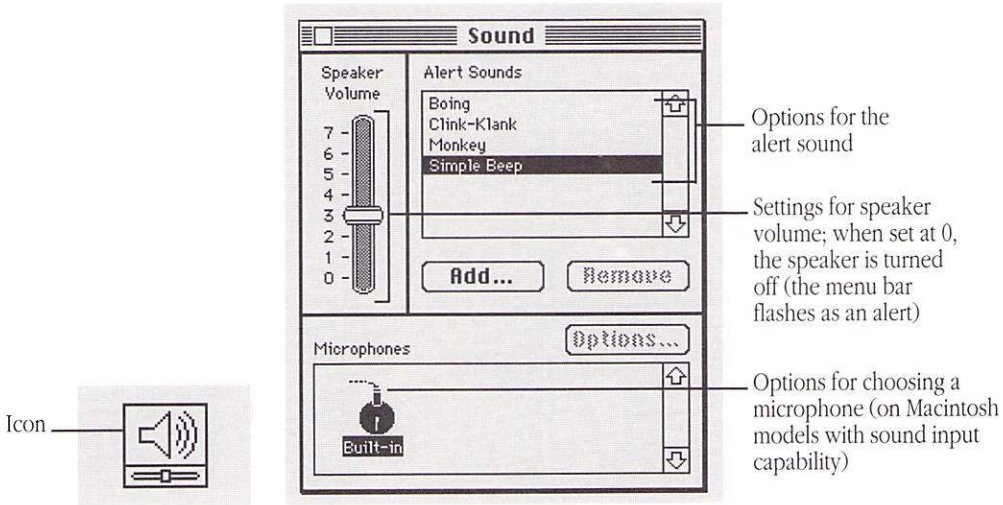
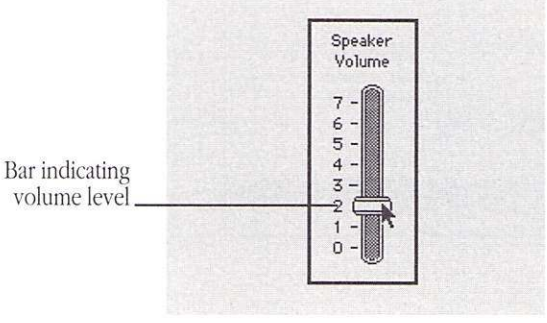


Figure 7-3 The Sound control panel and its icon

Setting the speaker volume

You can choose one of eight volume settings for the Macintosh computer's built-in speaker. To adjust the volume, choose Control Panels from the Apple menu and then double-click the Sound control panel to open it.



Drag the bar to set the speaker volume.

When you release the mouse button, the alert sound plays at the volume you selected.

When you set the volume at zero, the menu bar flashes in place of an alert sound.

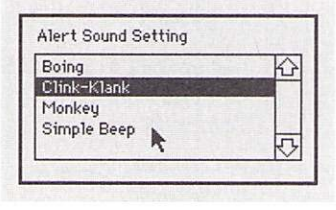
Your choice remains in effect until you choose a different speaker volume.

➤ *See also:* "Setting the Alert Sound" (next section)

Setting the alert sound

Many programs are designed to play a sound when an alert message is displayed or when you try to give a command that the program does not recognize. You can choose one of several options for the alert sound.

To set the alert sound, choose Control Panels from the Apple menu and then double-click the Sound control panel to open it.



Click the name of the sound you want.

The sound plays when you click it.

Your choice remains in effect until you choose a different alert sound.

❖ *Flash instead of sound:* When the speaker volume is set to zero, the menu bar flashes in place of an alert sound. ❖

➤ *See also:* "Setting the Speaker Volume" (previous section)

Installing a sound

The Macintosh has a set of standard sounds. You select one of these to be your alert sound using the Sound control panel. You can get additional sounds from various sources. To install a sound, you add it to the System file inside the System Folder.

You can recognize a sound by its special icon. (See Figure 7-4.) You can listen to a sound by double-clicking its icon.

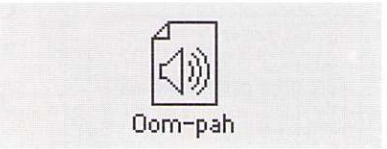
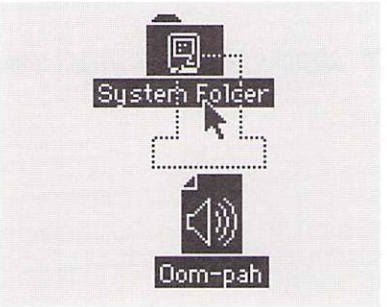


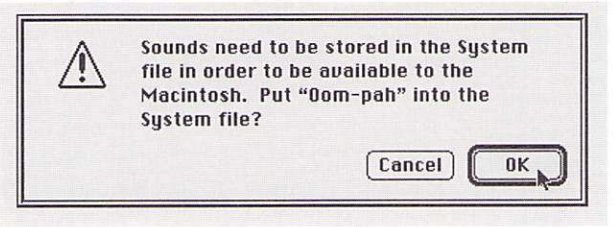
Figure 7-4 A sound file icon

Once you add a sound to the System file, it is listed in the Sound control panel.



1 **Select the sound you want to install and drag it to the System Folder of your startup disk.**

A dialog box appears, asking if the sound should be placed inside the System file.



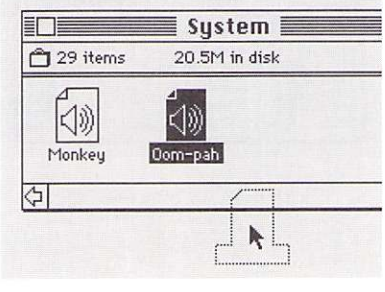
2 **Click OK to complete the sound installation.**

Removing a sound

You remove a sound by dragging its icon out of the System file (inside the System Folder) of your startup disk.

1 Open the System Folder of your startup disk by double-clicking its icon.

2 Locate the System file icon and double-click to open it.



3 Locate the sound you wan to remove and drag it out of the System file.

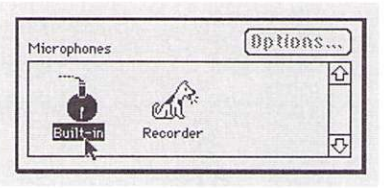
You can hear a sound by double-clicking its icon.

Recording sounds

Some Macintosh computers come with a sound input port, to which you can connect either a microphone (to record sounds that you create) or a phono jack adapter (to record sounds from another audio source such as a compact disc or a tape cassette). All Macintosh computers can accept sound input, but with some you need to purchase special equipment to record sounds.

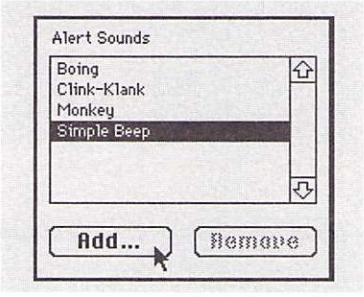
Recording a system sound

One way you can experiment with your computer's sound input capability—without purchasing additional software—is by adding a new system sound. To add a new sound, connect the microphone to your computer as described in the setup guide that came with your computer. Then choose Control Panels from the Apple menu and double-click the Sound control panel to open it.



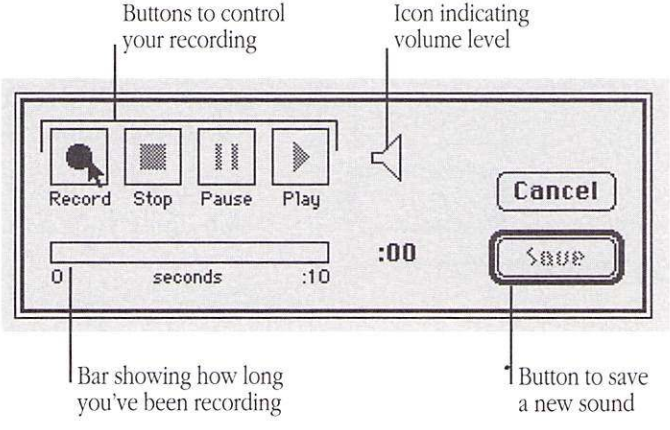
1 **Click the icon that represents the sound input device you want to use.**

If you have only one sound input device connected to your computer, it's already selected and you can skip this step.



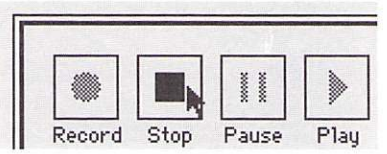
2 Click the Add button.

The Record dialog box appears.

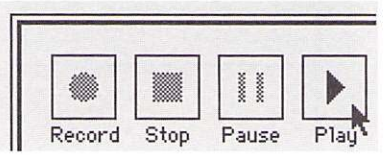


3 To record your new sound, click the Record button.

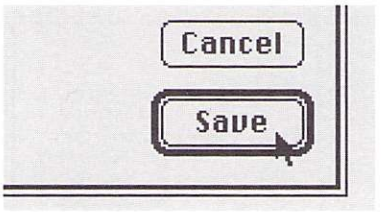
Recording begins immediately; you have ten seconds to record your sound. To adjust the volume of the recorded sound, you can make the sound louder or softer, or you can move the microphone.



4 Click Stop to stop recording.

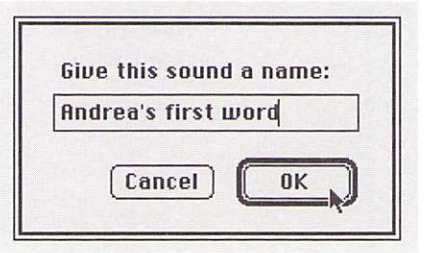


5 To listen to the sound you just recorded, click Play.



6 To save the sound you just recorded, click Save.

A dialog box appears that lets you name your new sound.



7 Type a name for your sound, and click OK.

Your new sound is stored in the System file. Its name appears in the Sound control panel.

When you're finished recording new sounds, close the Sound control panel.

Setting time and date

The Macintosh has an internal clock that runs continuously. A battery inside the computer maintains the time and date when the machine is turned off.

You can set the time and date in the General Controls panel (or in the Alarm Clock desk accessory). Figure 7-5 shows the General Controls panel icon and its open window.

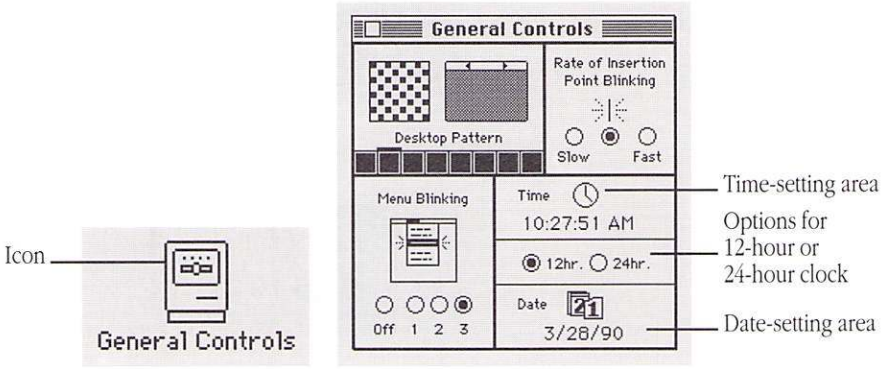


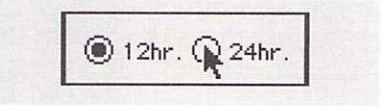
Figure 7-5 The General Controls panel and its icon

➤ *See also:* "Setting an Alert Time With the Alarm Clock" later in this chapter
"Changing the Clock Battery" in Chapter 9

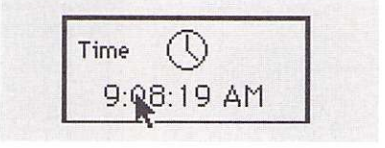
Changing the time or date

You change the time or date in the General Controls panel. When setting the time, you can specify a 12-hour clock (showing A.M. and P.M. with the time) or a 24-hour clock.

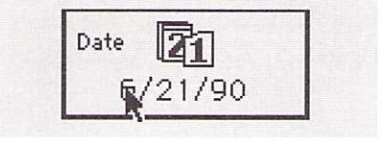
To adjust the time or date, you choose Control Panels from the Apple menu and then double-click the General Controls panel to open it.



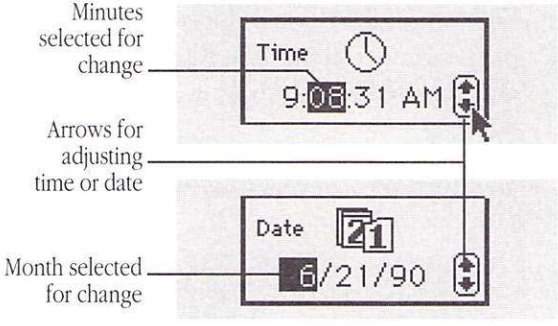
1 If you want to change the type of clock selected (12-hour or 24-hour), click the appropriate button.



2 Click the part of the time or date you want to change (hours, minutes, seconds, AM or PM, month, day, or year).

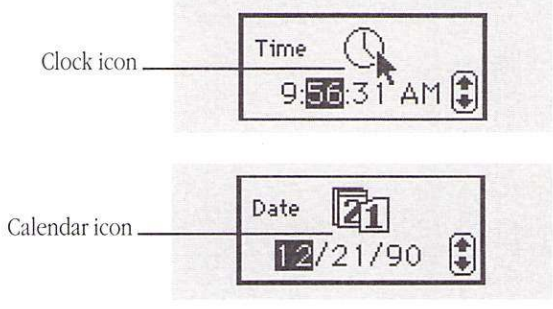


The part of the time or date you click becomes highlighted, and small up and down arrows appear at the right.



3 Click repeatedly on the up or down arrow until the time or date you want is displayed.

You can also type a new number.



4 To save the new time or date, click the clock icon (for time) or the calendar icon (for date).

The icon becomes highlighted briefly, then the new time or date is displayed.

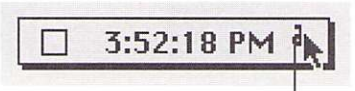
The time or date you set remains in effect until you change it.

- *Another way to set the time or date:* You can also set the time or date, as well as an alert time, in the Alarm Clock, a desk accessory that is part of the system software supplied with the Macintosh. ❖

Setting an alert time with the Alarm Clock

You can set the Alarm Clock desk accessory to alert you at a predetermined time. The Alarm Clock is part of the system software and is placed in the Apple menu when you install the system software.

You open the Alarm Clock by choosing it from the Apple menu.

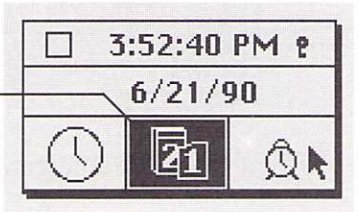


Lever to expand or compress the Alarm Clock

1 Click the upward-pointing lever to the right of the time to expand the Alarm Clock.

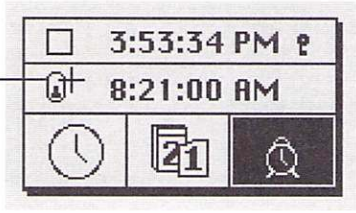
The lever points down, and the Alarm Clock expands to its full size.

The highlighted area indicates the item displayed in the middle row—the date, in this example.



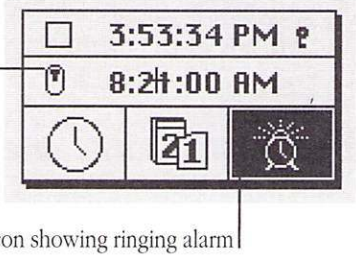
2 Click the alarm clock icon in the lower right to select it.

The alarm clock is highlighted when you select it. The time that appears in the middle is the current alarm setting.



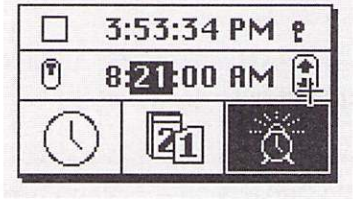
3 Click the button to the left of the time in the middle section to turn the alarm on.

When you click, the alarm clock icon changes to indicate that the alarm is turned on. (Clicking again turns the alarm off.)



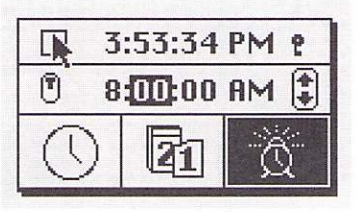
4 Click the part of the time you want to change.

The part of the time selected becomes highlighted, and small arrows appear.



5 Click the up or down arrow repeatedly until the time you want is displayed.

Or you can type the number you want.



6 **Click the close box to close the Alarm Clock.**

The alarm will not go off unless you click the lever to return to the compact clock, select another area of the clock, click the close box, or make another window active.

When the system clock reaches the time set for the alarm, the alert sound plays (the menu bar flashes once if the speaker volume is set to zero) and an alarm clock icon alternates with the Apple icon at the left side of the menu bar. (See Figure 7-6.)

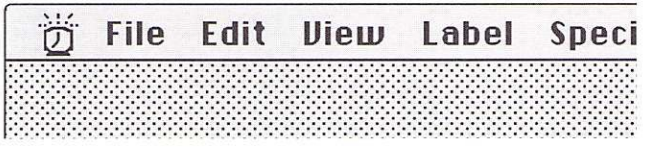


Figure 7-6 The alarm clock icon in the menu bar

You need to open the Alarm Clock to stop the alarm clock icon blinking in the menu bar.

- *Setting the time and date:* You can also set the system clock's time and date in the Alarm Clock desk accessory, by first selecting the time or date icon and then changing the numbers. ❖

Changing the look of the desktop

You can modify the desktop's appearance with several different control panels.

You adjust three of these items—the desktop pattern, blinking of a chosen menu item, and blinking of the insertion point—in the General Controls panel. Figure 7-7 shows this control panel and its icon.

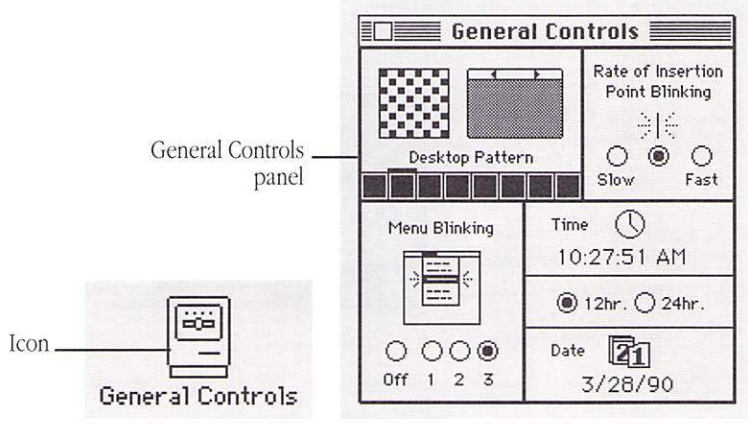
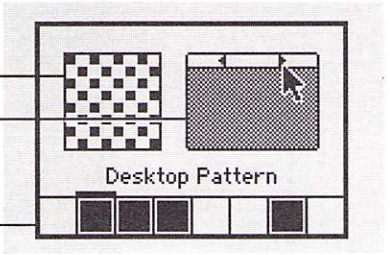


Figure 7-7 The General Controls panel and its icon

Changing the pattern displayed on the desktop

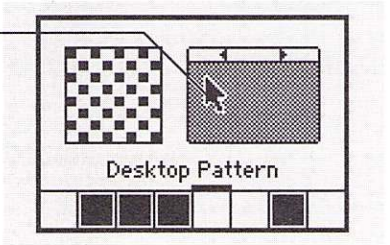
You can choose from a variety of patterns provided for the Macintosh desktop, or you can create your own design by editing one of the patterns supplied. If your Macintosh can display colors or shades of gray, you can also select your own colors to use in the desktop pattern.

To adjust the desktop pattern, choose Control Panels from the Apple menu and then double-click the General Controls panel to open it.



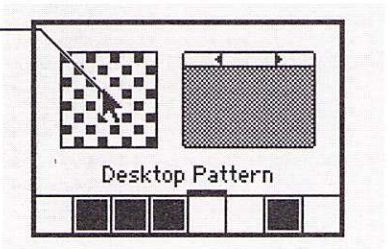
1 To see the patterns available, click one of the small triangles at the top of the miniature desktop.

The pattern changes each time you click.



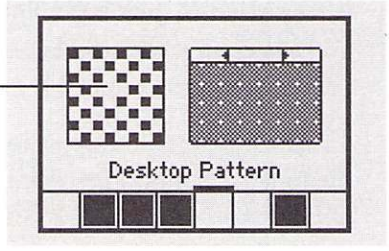
2 When you see a pattern you like, click the miniature desktop to see the new pattern on your desktop.

The new pattern replaces the current pattern for the desktop.

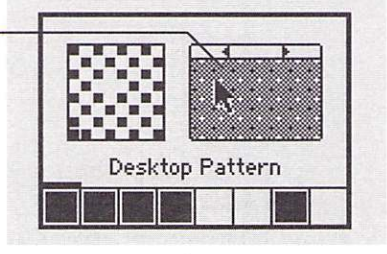


3 To edit a pattern, click in the pattern-editing area.

Each square changes color when clicked. Your changes are displayed in the miniature desktop.



4 To edit with another color, select it in the color bar, then click the squares you want to change.



5 When you've finished editing, click in the miniature desktop to display the new pattern on the desktop.

By double-clicking in the miniature desktop, you can save the new pattern. Otherwise it is lost when you display another pattern in the miniature desktop.

The desktop pattern remains in effect until you change it.

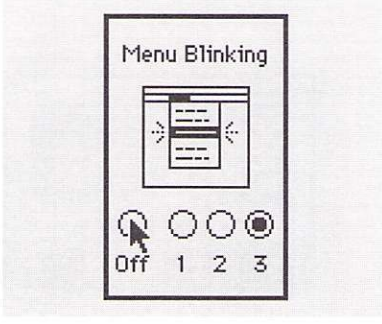
❖ *Changing a color in the desktop pattern:* You can also change the color of an existing pattern by double-clicking a color in the color bar and choosing a new color from the color wheel dialog box (in the same manner as you change the highlight color—see Figure 7-12). ❖

➤ *See also:* "Changing the Highlight Color" later in this chapter
"Coloring Icons" later in this chapter
"Changing the Colors in the Label Menu" later in this chapter

Adjusting the blinking of a menu item

Menu items are preset to blink three times when you choose them. You can change the number of times a menu item blinks using the General Controls panel. (See Figure 7-7.)

To adjust menu blinking, choose Control Panels from the Apple menu and then double-click the General Controls panel to open it.



Click the button for the number of times you want the menu item to blink.

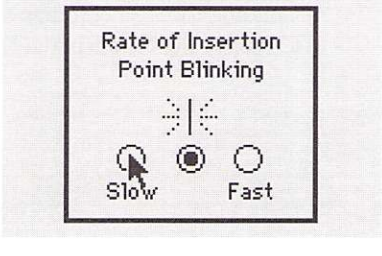
Clicking the Off button prevents a menu item from blinking.

The menu-blinking option you selected remains in effect until you change it.

Adjusting the blinking of the insertion point

The insertion point is used to designate the place in a document or an icon name where new material will be inserted. You can change the blinking rate of the insertion point in the General Controls panel. (See Figure 7-7.)

To adjust the blinking of the insertion point, choose Control Panels from the Apple menu and then double-click the General Controls panel to open it.



Click the button for the rate of blinking you want.

When you click, the example insertion point shows the rate of blinking you selected.

The option you selected remains in effect until you change it.

Customizing how icons and list views appear

The Views control panel lets you designate how icons are displayed on the desktop and what information list views contain. You can also change the font used for icon names and list views.

Figure 7-8 shows the Views control panel and its icon.

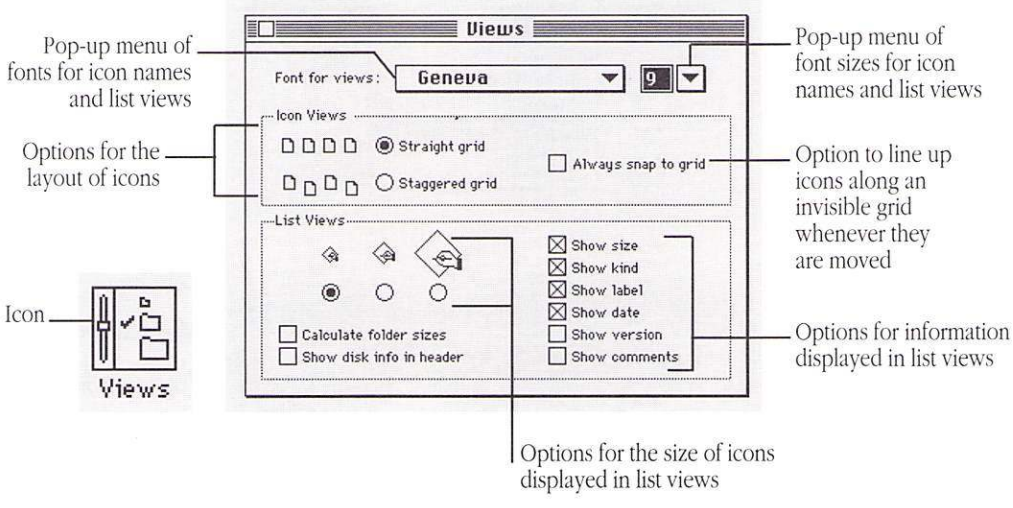
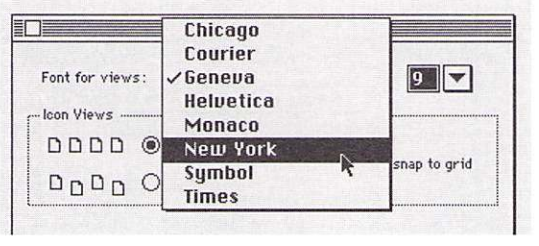


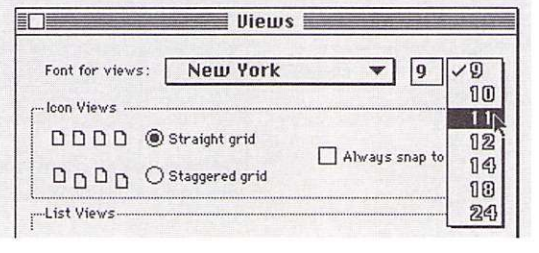
Figure 7-8 The Views control panel and its icon

Changing the font for list views and icon names

You use the Views control panel to change the font and size used in the Finder for icon names and information. You open the Views control panel by choosing Control Panels from the Apple menu and then double-clicking the Views icon.



1 Choose a font from the pop-up menu.



2 Choose a font size from the pop-up menu.

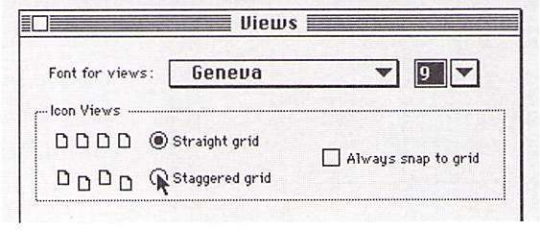
You can also type a number for the font size. Numbers displayed in outline form indicate the sizes that look best.

Your changes take effect immediately.

Changing the layout of icons on the desktop

You change the layout of icons in the Finder in the Views control panel, which you open by choosing Control Panels in the Apple menu and then double-clicking the Views icon. (See Figure 7-8.)

Icons are arranged along an invisible grid of horizontal and vertical lines on the desktop or in a window. You can designate whether the icons should always line up along the grid when you move them (the "always snap to grid" option), and you can specify whether icons are displayed in straight rows (straight grid) or in offset rows (staggered grid).



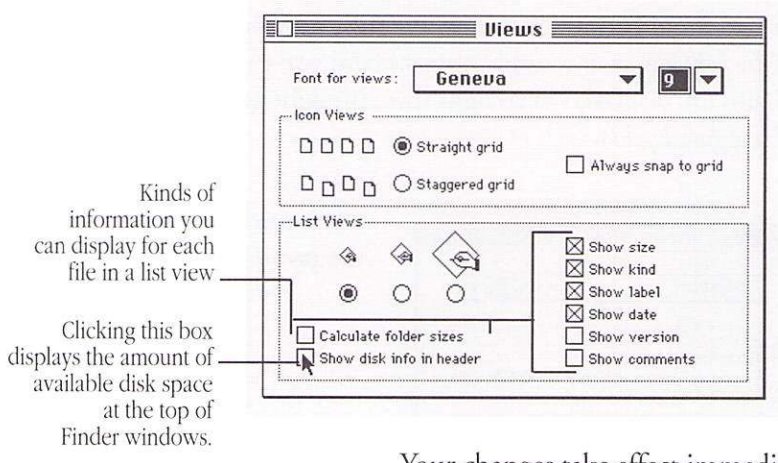
Click the options you want for the layout of icons.

Your changes take effect the next time you use the Clean Up command.

➤ *See also:* "Straightening Up Icons on the Desktop or in a Finder Window" in Chapter 5

Changing the information or icon size displayed in list views

You change the information and size of icons displayed in list views (such as View by Name or View by Date) in the Views control panel, which you open by choosing Control Panels from the Apple menu and then double-clicking the Views icon. (See Figure 7-8.)



Click the kinds of information and size of icons you want displayed in list views.

The information you select will appear in all Finder windows that display items in a list (rather than by icon or by small icon). The "Show" options you select will also appear as commands in the View menu.

Your changes take effect immediately.

Changing the appearance of icons

The Macintosh system software lets you customize icons by changing the look of the icon itself, and by adding labels to icons. If your Macintosh displays color or shades of gray, the label can be both a word and a color. If your system displays only black and white, you can add word labels.

After you label icons, you can use the View menu to group similar types of items by label.

➤ *See also:* "Coloring Icons" later in this chapter
"Changing the Colors in the Label Menu" later in this chapter

Changing the look of an icon

You can invent your own icons by changing the look of existing icons. You can use a graphics program to create and copy the picture you want, and then paste it into the icon's Info window. Figure 7-9 shows the Info window for a folder. The icon is selected for replacement.

A box around the icon indicates that it's selected.

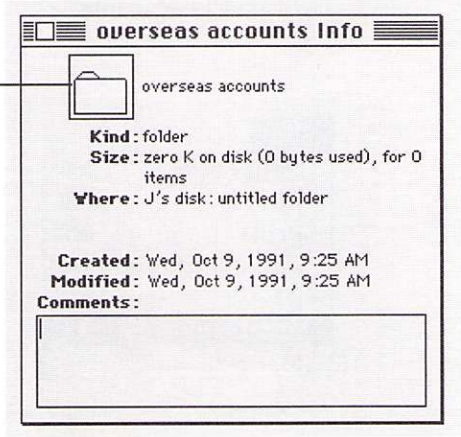
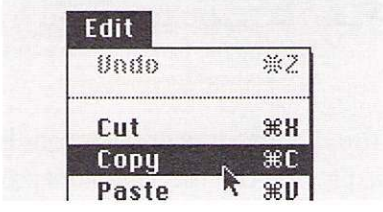


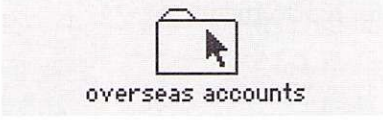
Figure 7-9 A folder's Info window with the icon selected

Some icons can't be customized, including those for locked items, control panels, and other parts of the system software.

1 In a graphics program, select the picture you want to use for the icon.

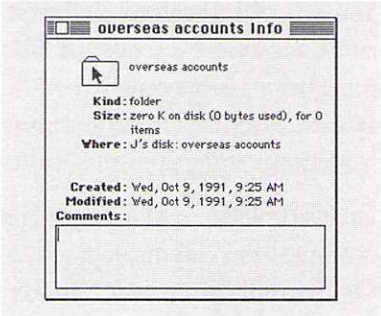


2 Copy the picture by choosing Copy from the Edit menu.



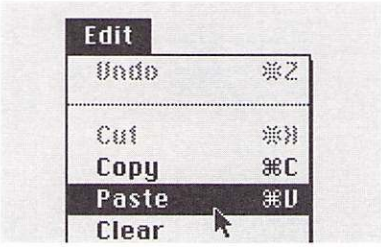
3 Switch to the Finder, then click to select the icon you want to change.

4 Choose Get Info from the File menu.



5 Click the icon at the upper left of the Info window to select it

A box appears around the icon when it's selected. If no box appears when you click, the icon can't be changed.



6 Choose Paste from the Edit menu.

The picture you copied replaces the selected icon in the Info window. If the picture is bigger than the icon, it automatically shrinks to fit.

7 Click the close box to close the Info window.

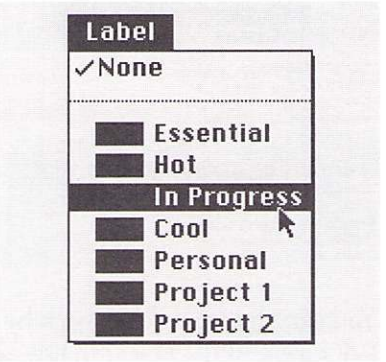
You can change an icon back by clicking the picture in the upper-left corner of the Get Info box and choosing Cut or Clear from the Edit menu.

Adding labels to icons

You can add a label to each icon, and you can easily change the labels available for icons. (A label is different from the icon's name; the label is visible only when the contents of a window are displayed as a list, although the color associated with a label is visible if the Macintosh is set to display colors or grays).

Labels provide an easy way to group related files together; for example, you can display a list view of a window's contents by label. Or, if you have a color monitor, you can easily identify related icons by assigning a color to each label.

1 Click to select the icon to which you want to add a label.



2 Choose the label you want from the Label menu.

➤ *See also:* "Changing the Contents of the Label Menu" (next section)

Changing the contents of the Label menu

You can change the labels available for icons in the Labels control panel. Figure 7-10 shows this control panel and its icon. (You also use this control panel to change the colors in the Label menu if your monitor displays color or grays.)

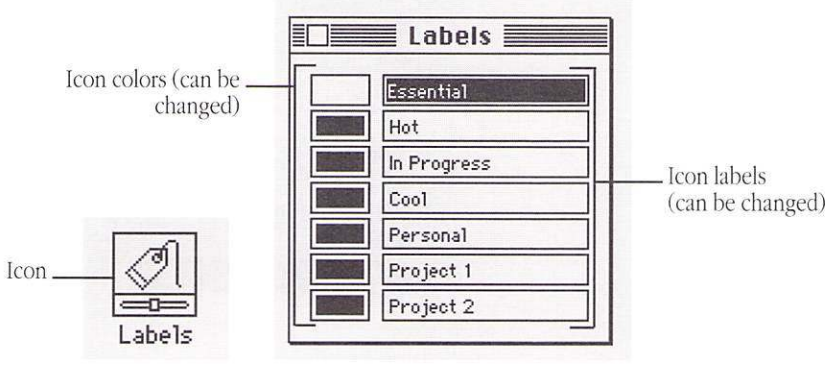
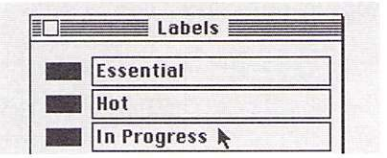


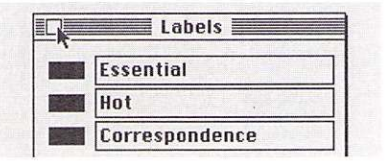
Figure 7-10 The Labels control panel and its icon

To change the labels available, choose Control Panels from the Apple menu and then double-click the Labels control panel to open it.



1 Place the pointer on the label you want to change and click to select it.

2 Type the new label.



3 Click the close box when you've finished changing labels.

➤ *See also:* "Changing the Colors in the Label Menu" later in this chapter
"Adding Labels to Icons" (previous section)

Displaying colors or shades of gray

If your Macintosh computer and its monitor can display color or multiple shades of gray, you can designate the number of colors or shades of gray to be displayed and then specify the colors to use in highlighting, in window borders, in the desktop pattern, and in icons.

Specifying the number of colors or grays

You use the Monitors control panel to specify the number of colors or shades of gray displayed on your Macintosh. Figure 7-11 shows its icon and open window.

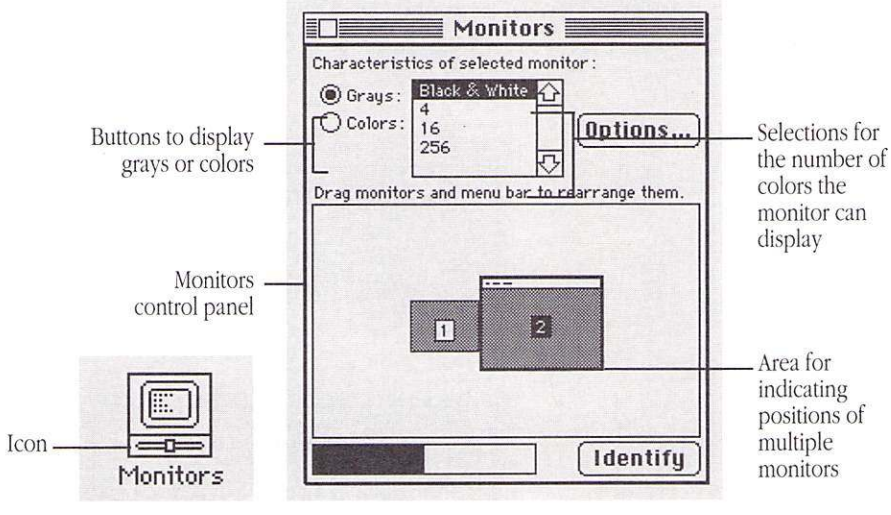
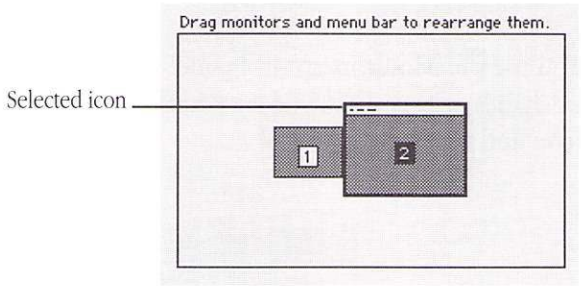


Figure 7-11 The Monitors control panel and its icon

The number of colors (or shades of gray) your Macintosh can display depends on the type of video capability it has. See the *Special Options and Technical Information* booklet or other documentation that came with your Macintosh and your monitor for details about displaying colors.

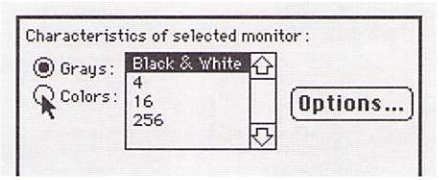
If your Macintosh offers built-in video, you can use the Monitors control panel to assign a portion of system memory for video use. The *Special Options and Technical Information* booklet or other documentation for your Macintosh provides instructions for this procedure if you have a model with built-in video.

To specify the number of colors, choose Control Panels from the Apple menu and then double-click the Monitors control panel to open it.



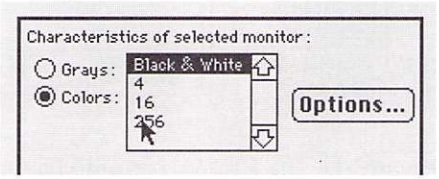
1 If you have more than one monitor, click the icon of the monitor whose colors you want to adjust.

A dark border appears around the icon to show it is selected.



2 Click the Grays or the Colors button.

Some monitors can display only shades of gray, even if you click the Colors button.



3 Click the number of colors or shades of gray you want displayed on the selected monitor (or click Black & White).

Your changes take effect immediately. The number of colors or shades of gray you specified remains in effect until you change it.

Changing the highlight color

You can change the color your Macintosh uses to highlight selected text on your screen, using the Color control panel and the color wheel dialog box. (See Figures 7-12 and 7-13.)

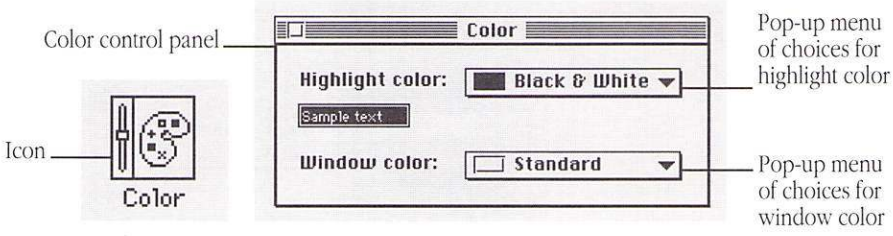


Figure 7-12 The Color control panel and its icon

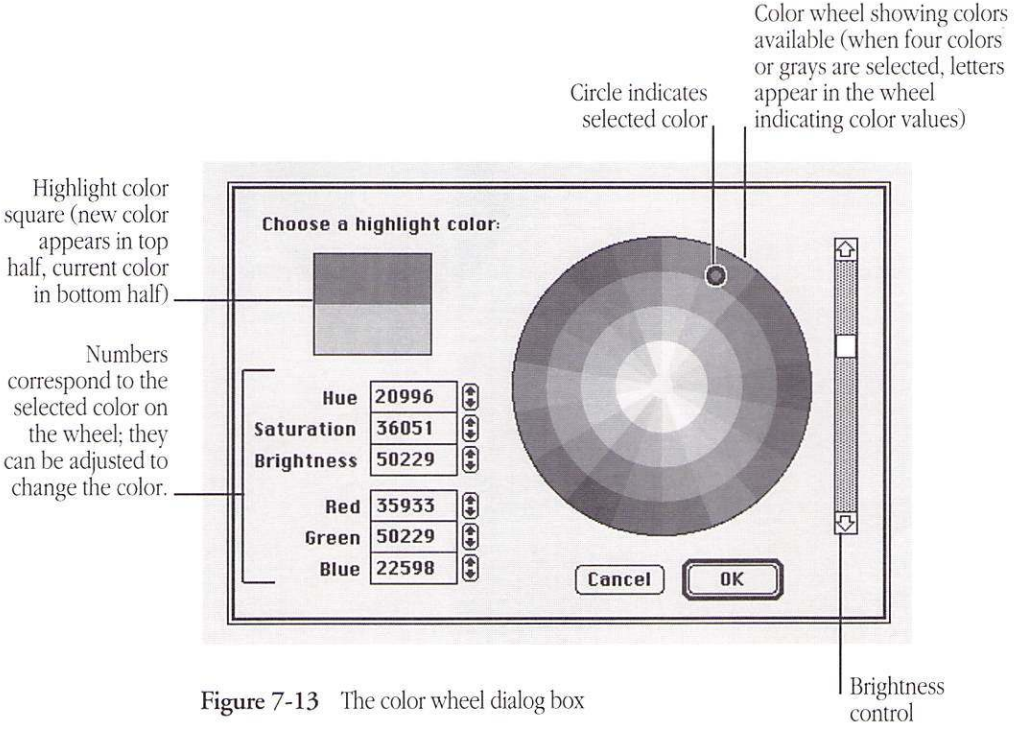
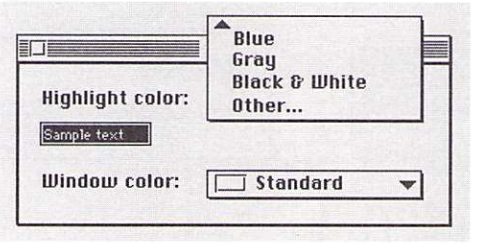


Figure 7-13 The color wheel dialog box

You can't change the highlight color if the monitor is set to display black and white only.

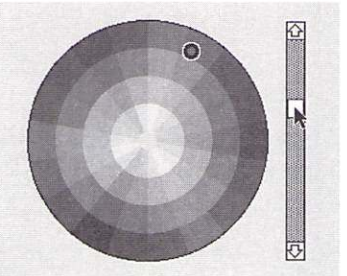
To designate a highlight color, choose Control Panels from the Apple menu and then double-click the Color control panel to open it.



1 Open the "Highlight color" pop-up menu and choose a color or choose Other.

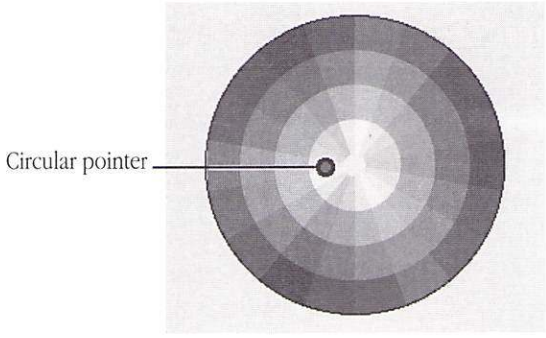
If you choose a color, it appears in the Sample text box when you release the mouse button.

If you choose Other, the color wheel dialog box is displayed.



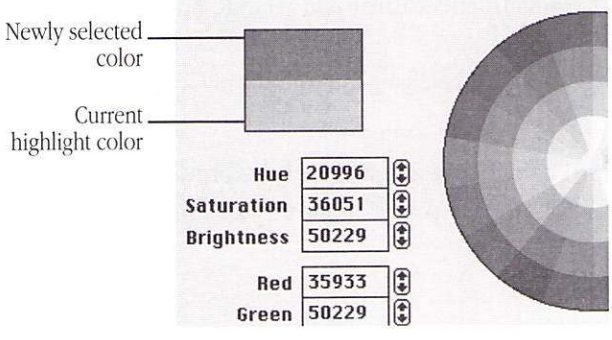
2 If desired, change the brightness of the color wheel by dragging the scroll box up or down.

Scrolling up makes the color wheel brighter; scrolling down makes it darker.



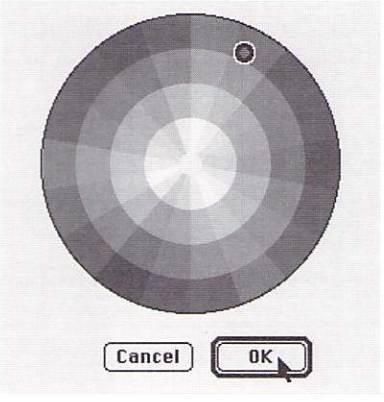
3 Place the pointer on the color wheel and click to select a new color.

The new color is displayed in the top half of the color square if your monitor is set to display 16 or more colors. The current highlight color or shade remains in the bottom half of the square for comparison; you can click there to go back to it.



4 To experiment with other highlight colors or shades, drag the pointer around the wheel or click at another point on the wheel.

If your monitor is set to display 16 or more colors, new colors or shades appear in the upper half of the color square as you drag or click.



5 When you are satisfied with the highlight color, click OK to confirm your choice.

The dialog box closes, revealing the Color control panel. The new highlight color is displayed in the "Sample text" box.

The highlight color you specified takes effect immediately and remains in effect until you change it.

➤ *See also:* "Specifying the Number of Colors or Grays" earlier in this chapter

Changing the color of windows

You can change the color of the borders around windows using the Color control panel. Figure 7-14 shows the Color control panel and its icon.

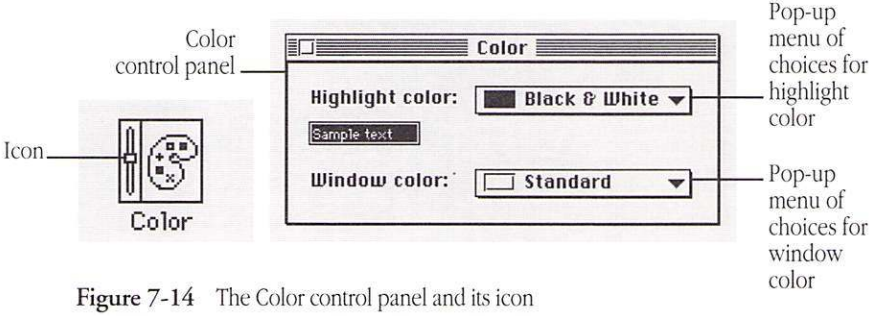
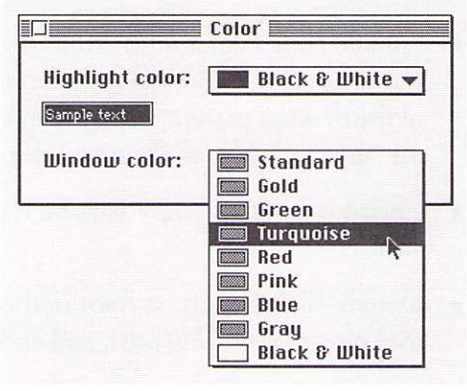


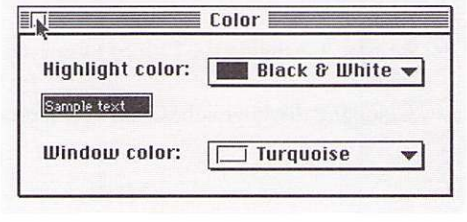
Figure 7-14 The Color control panel and its icon

To change the window color, choose Control Panels from the Apple menu and then double-click the Color control panel icon to open it.



1 **Open the "Window color" pop-up menu and choose a color.**

The window color changes when you release the mouse button.



2 **Click the close box to close the control panel.**

Changing the colors in the desktop pattern

You can change the colors or shades of gray displayed in the desktop pattern in the General Controls panel.

You change colors in the pattern in one of three ways:

- Double-click a color in the color bar and choose a new color from the color wheel dialog box. If that color currently appears in the desktop pattern displayed in the General Controls panel, the squares change to the new color.
- Click a color in the color bar and click or drag in the editing area.
- Double-click an unused color in the color bar, change it (using the color wheel dialog box), and click or drag in the editing area.

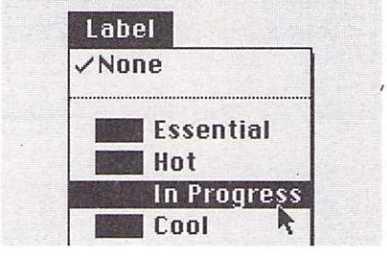
When you have the pattern you want, click the miniature desktop to display it.

➤ *See also:* "Changing the Pattern Displayed on the Desktop" earlier in this chapter
"Changing the Highlight Color" earlier in this chapter

Coloring icons

You can easily change an icon's color using the Label menu. This menu displays labels you can use to identify icons, and it also shows colors if your monitor is capable of displaying color or multiple shades of gray and if you have set your monitor to display at least 16 colors or grays in the Monitors control panel.

1 Select the icon that you want to color.



2 Choose the color you want from the Label menu.

The icon's color will be changed to the one selected (and the corresponding label will be added also, when the item is displayed in a list).

The icon retains the new color until you change it.

➤ *See also:* "Adding Labels to Icons" earlier in this chapter
"Specifying the Number of Colors or Grays" earlier in this chapter
"Displaying a List of Items by Name, Size, Label, Kind, or Date" in Chapter 5

Changing the colors in the Label menu

You specify the colors available for icons using the Labels control panel. Figure 7-15 shows the Labels control panel and its icon.

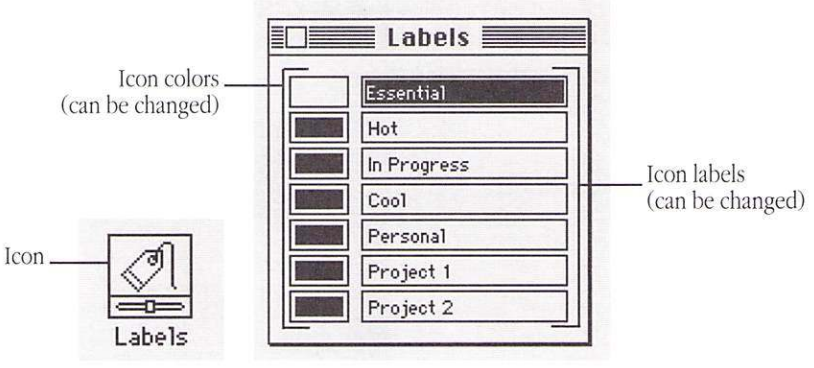
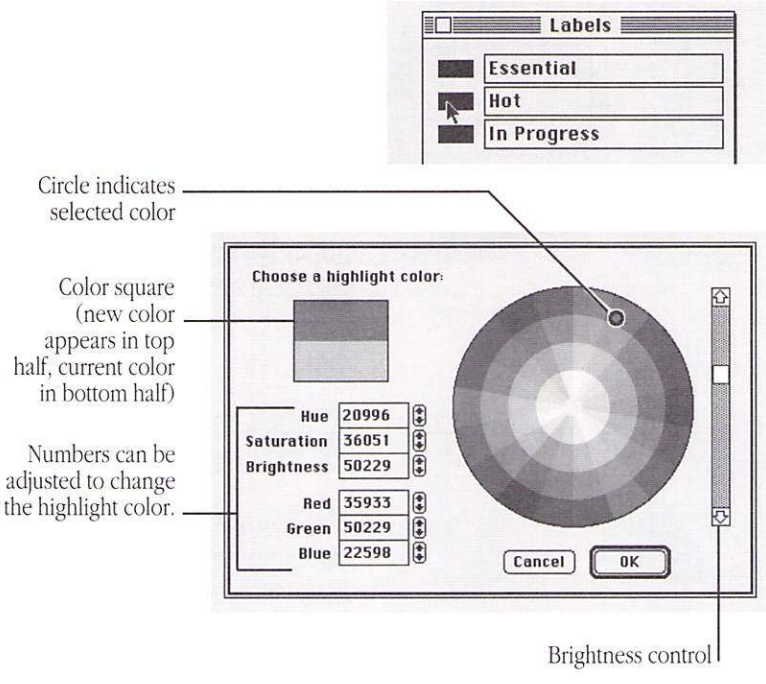


Figure 7-15 The Labels control panel and its icon

To specify colors available for icons, choose Control Panels from the Apple menu and then double-click the Labels control panel to open it.

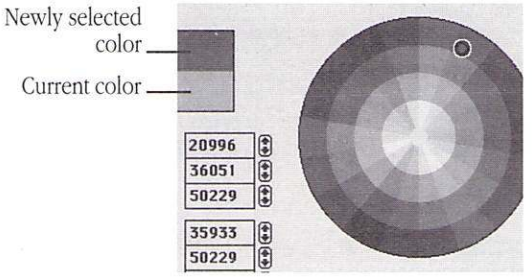


1 Click the color you want to change.

The color wheel dialog box opens when you click a color.

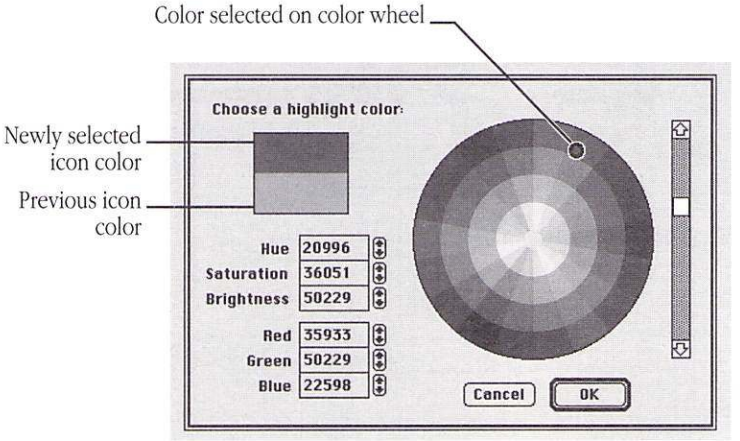
2 Place the pointer on the color wheel and click to select a new color.

The new color is displayed in the top half of the color square if your monitor is set to display 16 or more colors or grays. The current color remains in the bottom half of the square for comparison.



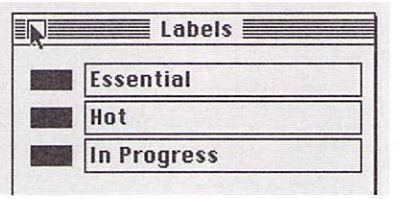
3 **To experiment with other colors or shades, drag the pointer around the wheel or click at another point on the wheel.**

A new color is displayed in the upper half of the color square as you drag or click.



4 **Click OK when you have selected the color you want.**

The color wheel dialog box closes, showing the new color or shade of gray you selected for that label.



5 **Close the Labels control panel.**

The label color you selected remains in effect until you change it.

Configuring multiple monitors

Some Macintosh computers can use more than one monitor. If you use more than one monitor, you need to indicate the monitors' positions and designate one as the main monitor (the one that displays the menu bar). For additional monitor options, see the *Special Options and Technical Information* booklet or other documentation that came with your computer and monitor.

Indicating the positions of multiple monitors

If you use two or more monitors, you must indicate their relative positions so that the pointer can move from one monitor to another. You specify monitor positions in the Monitors control panel. Figure 7-16 shows this panel and its icon.

The ID number helps you identify which icon belongs to which monitor.

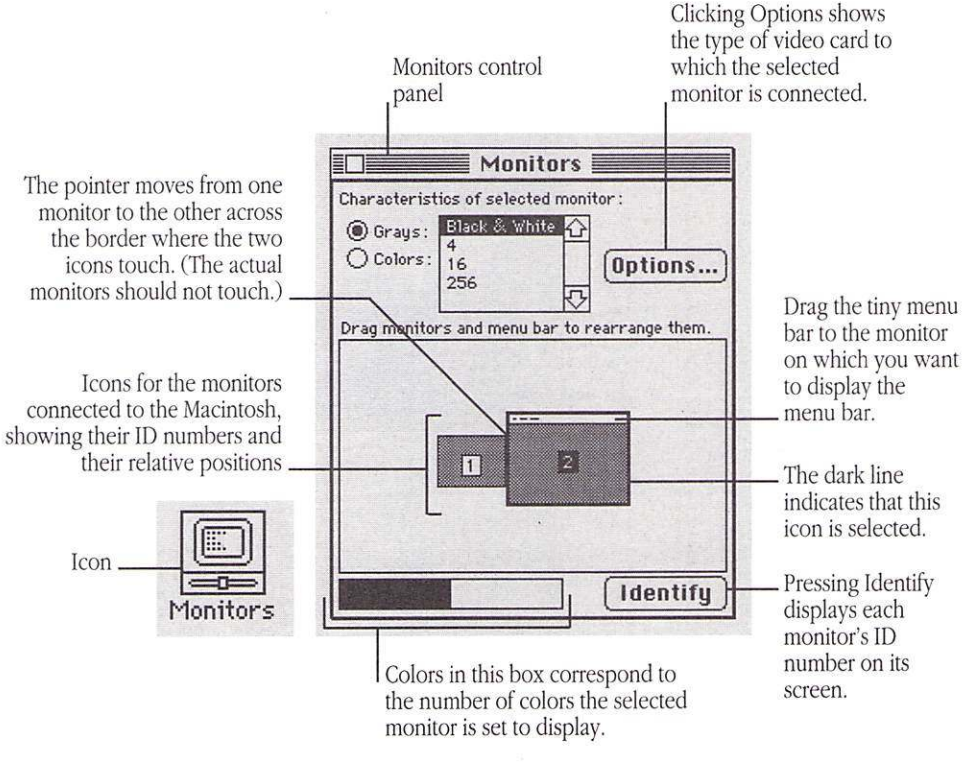
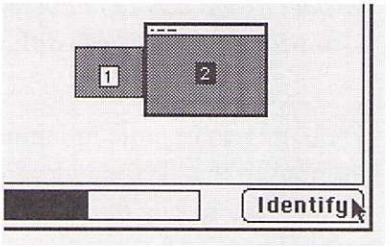


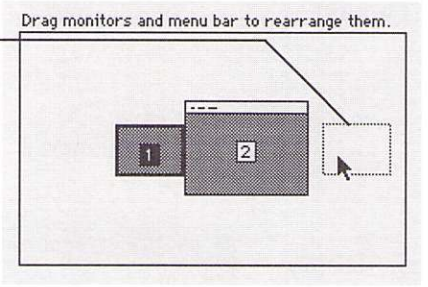
Figure 7-16 The Monitors control panel and its icon

To indicate monitor positions, choose Control Panels from the Apple menu and then double-click the Monitors control panel to open it.



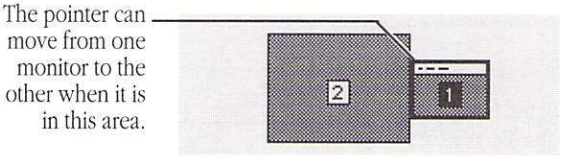
1 If necessary, check the numbers of your monitors by pressing the Identify button.

A large number appears in the center of each monitor's screen; it corresponds to the number of the icon in the control panel.



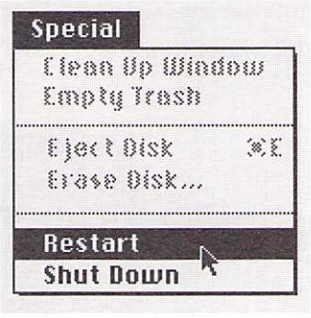
2 Drag the icon of the monitor you want to reposition to a location on the screen that corresponds to the monitor's actual position.

The icon snaps back against another monitor icon when you release the mouse button.



3 Release the mouse button when the icon you're repositioning is where you want it.

If necessary, repeat steps 1 through 3 to adjust the relative positions of other monitors.



4 Choose Restart from the Special menu to activate the new monitor positions.

The monitor positions you specified remain in effect until you change them and restart the Macintosh.

After you have specified the monitor positions, the pointer moves from one screen to another across the border where the monitors' icons touch in the control panel.

Selecting a monitor to display the menu bar

You use the Monitors control panel (see Figure 7-17) to designate a main monitor, the one that displays the menu bar.

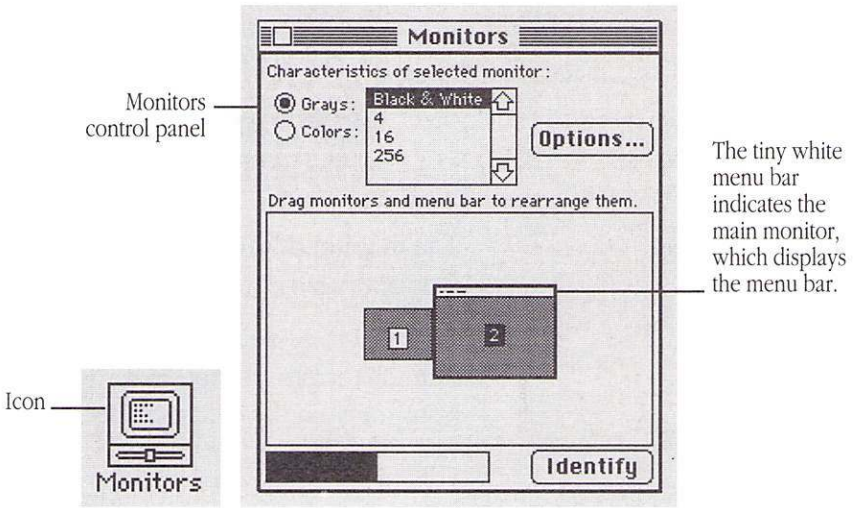
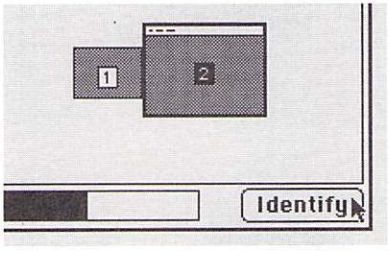


Figure 7-17 The Monitors control panel and its icon

- *Monitors of different sizes or different color capabilities:* You may want to make your larger monitor the main monitor. If the smaller one is the main monitor, some programs restrict the window size to the size of the smaller monitor.

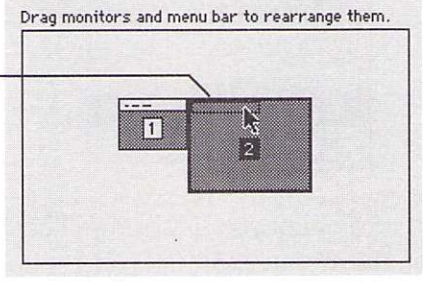
  If one monitor displays color and the other doesn't, you may want to make the color monitor the main one, to take advantage of color labels for icons and the color capabilities of some application programs. ❖

To designate a main monitor, choose Control Panels from the Apple menu and then double-click the Monitors control panel to open it.



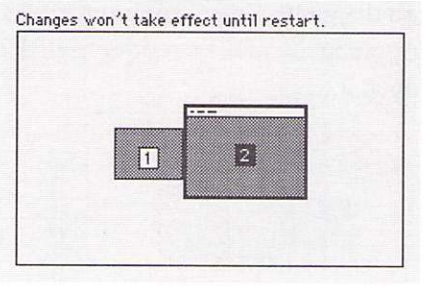
1 If necessary, check the numbers of your monitors by clicking the Identify button.

A large number appears in the center of each monitor's screen; it corresponds to the number of the icon in the control panel.



2 Drag the white menu bar from the top of one monitor icon to the icon of the monitor you want to be your main one.

An outline of the menu bar moves with the pointer as you drag.



3 **Release the mouse button when the menu bar's outline is where you want it.**

The menu bar appears across the top of the icon for the new main monitor.

4 **Choose Restart from the Special menu to activate the new main monitor.**

The monitor you specified will be the main one until you change it in the Monitors control panel and restart the Macintosh.

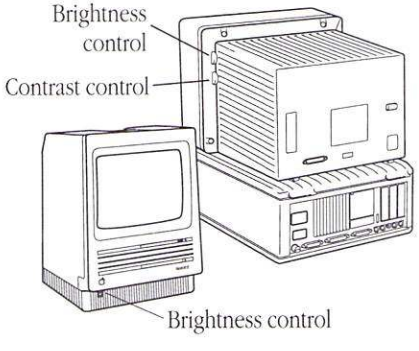
Changing the screen's brightness

You can adjust the screen's brightness for viewing comfort. It's a good idea to turn down the brightness if you're going to leave the computer on for a while without using it. If an image is left on the screen for several hours or more, it may damage the screen.

Or you can use a "screen saver" program, which dims the screen or displays a moving image after a preset interval with no activity.

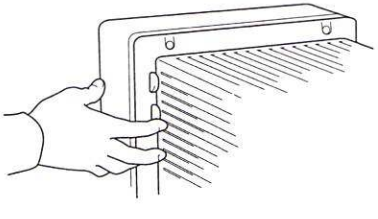
Adjusting screen brightness with hardware controls

Most Macintosh models provide a brightness dial on the monitor or the computer itself. (A few models do not have a dial but provide software for adjusting brightness.)



1 Locate the brightness control on your Macintosh computer or your monitor. If your Macintosh has a separate monitor, check the monitor's manual for specific instructions.

Most monitors that are not built in have two controls, for brightness and contrast.



2 Turn the control dials until the screen's appearance is satisfactory.

Adjusting screen brightness with software controls

Some Macintosh computers use software to control screen brightness. If your monitor does not have a brightness control, see the *Special Options and Technical Information* booklet for your Macintosh or the documentation that came with your computer for instructions on using the software to adjust brightness.

Turning the Trash warning on or off

When you want to remove an item from a disk, you drag it to the Trash. The Trash is never emptied automatically, however. To erase the Trash's contents, you choose the Empty Trash command from the Special menu.

To regain space on your disks, be sure to empty the Trash when it contains files you no longer want.

To prevent you from deleting items unintentionally, a warning message appears when you choose the Empty Trash command. (See Figure 7-18.)

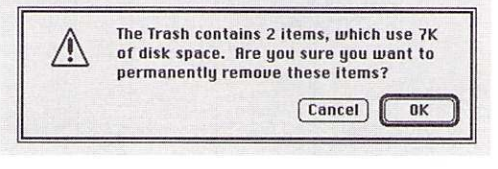


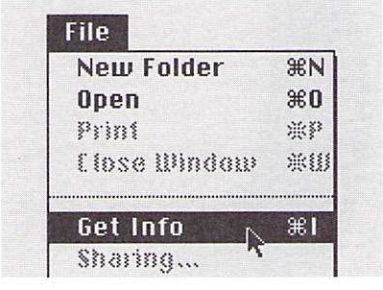
Figure 7-18 The warning displayed before the Trash is emptied

You can turn off this warning if you wish.

Changing the Trash warning status

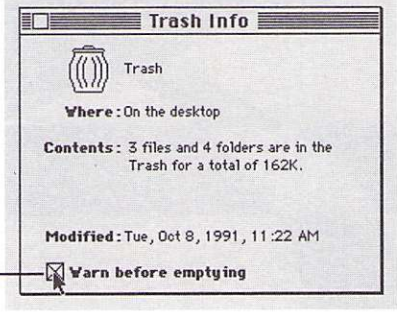
You use the Info window for the Trash to turn the warning message on or off.

1 **Click the Trash Icon to select it.**



2 **Choose Get Info from the File menu.**

The Info window opens.



The *X* indicates that the warning message is on. Clicking this box turns the warning message on and off.

3 **Click the box at the lower-left corner of the Info window to turn the warning on or off, then close the Info window.**

Once you turn off the Trash warning message, the items in the Trash will be erased without warning when you choose the Empty Trash command.

8

Expanding Your Macintosh System

The Macintosh is the heart of a powerful and versatile computer system. This system can include such external devices as disk and tape drives, printers, multiple monitors, scanners, modems, graphics tablets, and audio devices. All of these devices can be connected to the computer when it is originally set up or added later to expand its power.

The Macintosh can be expanded internally by installing additional memory and—in some models—coprocessor cards, specialized video and graphics cards, memory cache cards, and communications cards. (Cards are printed circuit boards that fit inside the Macintosh.)

This chapter provides an overview of the procedures you follow to connect hardware devices and install internal components in Macintosh computers.

▲ **Warning:** When you are connecting a device to your Macintosh, be sure to follow the instructions that came with your Macintosh and with the device. ▲

Connecting hard disks, scanners, and other SCSI devices

All Macintosh computers have a socket, or port, for connecting devices that use the Small Computer System Interface (SCSI). The SCSI port permits high-speed communication between the computer and the device. (SCSI is commonly pronounced "skuh-zee.")

Among the SCSI devices that are commonly used with the Macintosh are internal and external hard disk drives, tape backup drives, CD-ROM drives, scanners, and printers.

Because SCSI devices can be connected to one another, or daisy-chained, the Macintosh can use up to seven of these devices, including an internal hard disk.

Setting the SCSI ID number

Each SCSI device that you connect to your Macintosh needs to have a unique ID number. If two of your SCSI devices have the same number, you need to change one of the numbers. In most instances, you will not need to change the number unless you have two of the same kind of device, such as two external hard disks.

The Macintosh uses the ID number to assign each SCSI device a priority. The higher the number, the higher the device's priority. The computer itself is number 7 and an Apple internal hard disk is number 0 (so nothing else can have those numbers). The external devices you use most often should have the highest priority numbers.

Figure 8-1 shows the location of the ID number and switch on an Apple SCSI hard disk.

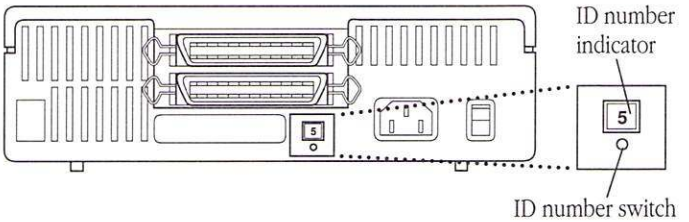


Figure 8-1 ID number on an Apple SCSI hard disk

You change the number of an Apple SCSI device by pressing an opened paper clip (or similar instrument) into the ID number switch on the device. Check the manual that came with your SCSI device for more detailed instructions.

▲ **Warning:** If you have two SCSI devices with the same ID number, be sure to change the ID number of one device. If you try to use two SCSI devices with the same ID number, your devices may not work properly, and you could lose information on one or both devices. ▲

Daisy-chaining SCSI devices

SCSI devices can be linked together by cables to form a chain. The arrangement of devices in a chain does not determine their priority in communicating with the Macintosh; the devices' ID numbers determine priority.

To ensure accurate transmission of information, a special connector, called a *SCSI cable terminator,* must be placed at each end of a SCSI chain. (See Figure 8-2.)

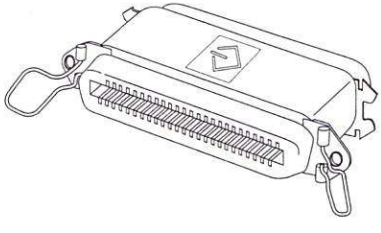


Figure 8-2 SCSI cable terminator

Every Macintosh that has an internal Apple hard disk has a built-in SCSI cable terminator. Some models have an internal terminator whether or not they have an internal hard disk. In most cases, the computer's internal terminator serves as the terminator for one end of the SCSI chain.

If you connect an external SCSI device to your Macintosh, you may need to attach an additional terminator. External SCSI devices manufactured by Apple do not have built-in cable terminators (and therefore require you to attach one), but some devices from other manufacturers do.

If you have a Macintosh Portable, consult the *Macintosh Portable Handbook* for instructions about using terminators.

Table 8-1 shows how to arrange the SCSI devices and terminators with several different configurations of equipment.

You connect devices with *SCSI cables.* There are two kinds of SCSI cables. A *SCSI system cable* connects the first device to the computer. A *SCSI peripheral cable* connects one device in a chain to another.

When you connect a SCSI cable to the Macintosh, you place the cable in the SCSI port on the computer's back panel. You can recognize the SCSI port by its icon, shown in Figure 8-3.

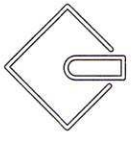


Figure 8-3 The SCSI icon

Table 8-1 Guidelines for using terminators when connecting SCSI devices to the Macintosh

If		then add terminator to external device
If		then no action needed
If		then add terminators to both external devices
If		then add terminator to first external device
If		then no action needed
If		then add terminator to external device
If		then no action needed
If		then add terminator to last external device
If		then no action needed
If		then have your authorized Apple dealer remove terminator from all but last external device

Macintosh without internal hard disk or terminator

Macintosh with internal hard disk or terminator

External device without terminator

External device with terminator

△ **Important:** Always turn on your external SCSI devices before turning on your computer. Also be sure to turn on the first and last device in a chain of SCSI devices. Otherwise your computer cannot recognize the SCSI devices. △

Connecting peripheral devices

The Macintosh has several ports to which you can connect peripheral devices. Each port is marked by a distinctive icon on the back panel of the computer and on the Apple cable that connects the appropriate device to it.

Connecting a printer

You connect most printers to the Macintosh through the printer port. This port is a *serial* port, meaning that it transmits the bits that make up the computer's information in single file, or serially.

Some printers, including most LaserWriter models, are designed for use on the AppleTalk network system. Others, such as the ImageWriter II, can operate either as stand-alone printers for one Macintosh or as network devices.

All these printers connect to the Macintosh's printer port. LaserWriter printers with the letters "SC" in their names connect to the SCSI port.

Figure 8-4 shows the printer port and its icon as they appear on the back panel of the Macintosh.

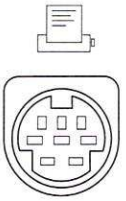


Figure 8-4 The printer port (bottom) and its icon (top)

A printer can also be connected to the modem port, which is also a serial port. You use the Chooser to indicate the port to which a printer is connected.

➤ *See also:* "Choosing a Printer" in Chapter 4
"Introduction to Using Your Macintosh on a Network," Chapter 1 of the *Macintosh Networking Reference*

Connecting a modem

The modem port on the Macintosh back panel is a serial port similar to the printer port. You use it to connect an external modem, a device that allows the computer to communicate with other computers over telephone lines.

It's best to connect a modem to the modem port (although it's possible to connect it to the printer port) because the computer gives the modem port priority when checking for activity. This helps to ensure that the modem's communication link remains intact.

Figure 8-5 shows the modem port and its icon as they appear on the back panel of the Macintosh.

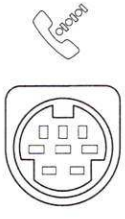


Figure 8-5 The modem port (bottom) and its icon (top)

Connecting an external floppy disk drive

Some Macintosh computers have a disk drive port, to which you can attach an external floppy disk drive.

Figure 8-6 shows the disk drive port and its icon as they appear on the back panel of the Macintosh.

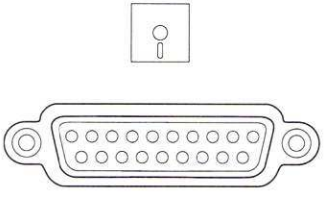


Figure 8-6 The disk drive port (bottom) and its icon (top)

If your Macintosh does not have a disk drive port, you can buy an external floppy disk drive that attaches to the SCSI port.

Connecting a keyboard, mouse, or other pointing device

On most Macintosh models, you connect the mouse and the keyboard to Apple Desktop Bus™ (ADB) ports. These ports allow you to use a variety of input devices with your system, such as a graphics tablet, a specialized keyboard, a trackball, a light pen, or a barcode reader.

You can connect ADB devices to one another and thereby connect several to each ADB port on the computer's back panel. Most Macintosh keyboards contain two ADB ports, and some monitors have an ADB port.

The number of input devices you can use is limited by the combined power they require and by their performance. Usually you can connect no more than six ADB devices—three for each ADB port.

△ **Important:** Do not exceed the Apple Desktop Bus power requirements when using ADB input devices. The combined power used by all devices must not exceed 500 milliamperes (mA). Be sure to check the power required for each device you use and make certain that the total needed is less than 500 mA. Consult the *Special Options and Technical Information* booklet or other documentation that came with your Macintosh computer, and the specifications for your ADB devices, for more information. △

Figure 8-7 shows the Apple Desktop Bus port and its icon as it appears above the port on most ADB devices.

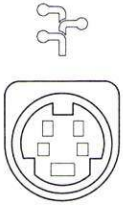


Figure 8-7 The Apple Desktop Bus port (bottom) and its icon (top)

- *Macintosh Plus mouse and keyboard:* The Macintosh Plus and earlier models of the Macintosh do not have ADB ports. On these computers, the mouse connects to a mouse port on the back panel of the computer and the keyboard plugs into the front of the computer. ❖

Connecting headphones or speakers

You can attach an audio device, such as speakers, an amplifier, or headphones, to the sound output port on the back of the Macintosh. The port accepts a standard stereo miniplug, like that used to attach headphones to a portable stereo player.

Figure 8-8 shows the sound output port and its icon as they appear on the back panel of the Macintosh.

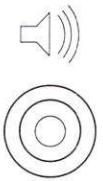


Figure 8-8 The sound output port (bottom) and its icon (top)

Adding additional monitors

You can use multiple monitors simultaneously with most Macintosh computers. To attach an additional monitor, you also need a video card or adapter.

Connecting a monitor to a built-in video port

Some Macintosh computers provide a built-in video port to which you can attach one monitor.

△ **Important:** If you're connecting a monitor to the built-in video port of your Macintosh, make certain that the computer is turned off before connecting the monitor. If the computer is turned on while the monitor is connected, you need to restart the computer before you can use the monitor. △

Figure 8-9 shows the built-in video port and its icon as they appear on the back panel of a Macintosh that has this port.

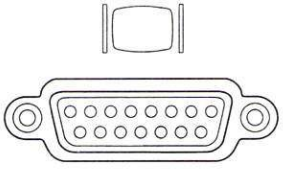


Figure 8-9 The built-in video port (bottom) and its icon (top)

For complete instructions consult the booklet *Setting Up Your Macintosh* or other documentation that came with your Macintosh, and the documentation for your monitor.

Connecting a monitor to a video card

On most models of the Macintosh, you can connect a monitor to a video card installed in the Macintosh. The card must be installed in the computer before you connect the monitor.

Figure 8-10 shows how a monitor cable is attached to a video card.

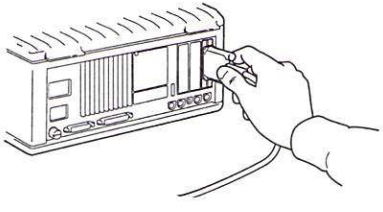


Figure 8-10 Attaching a monitor cable to a video card

For complete instructions consult the booklet *Setting Up Your Macintosh* (or other documentation for your Macintosh) and the documentation for your monitor and video card.

- *Additional monitor for a Macintosh with a built-in monitor:* Some Macintosh computers that have a built-in monitor, such as the Macintosh SE/30, can also use an external monitor. The external monitor is connected to an adapter that must be installed by an authorized Apple representative.

Positioning monitors

If there is interference (an image that seems to "shiver") when you're using two monitors, then position the monitors farther apart or angle the backs of the monitors away from each other.

▲ **Warning:** When setting up your monitors, be sure not to cover the ventilation openings on the monitors or on the Macintosh. Some monitors are too large to be placed on top of the computer. Check the setup guide for your Macintosh and the monitor's documentation for special instructions. ▲

➤ *See also:* "Indicating the Relative Positions of Multiple Monitors" in Chapter 7

Installing expansion cards in NuBus slots

Macintosh II–family computers and some other models contain slots for installation of expansion cards. These cards exchange signals with the computer through the NuBus™ interface; consequently, the cards are known as NuBus cards, and the expansion slots are called NuBus slots. (Some models of the Macintosh also have another type of expansion slot, discussed later in this chapter.)

Most video cards used with monitors are NuBus cards; there are also cards that add extra memory to your system, specialized graphics and video cards, coprocessor cards for enhanced performance, and cards that provide connections for specific types of computer networks.

Most Macintosh II models have either three or six NuBus slots.

Figure 8-11 shows the expansion slots in the Macintosh IIci.

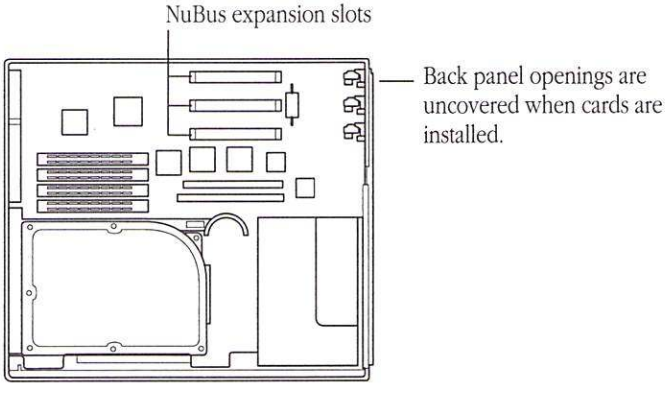


Figure 8-11 The three NuBus slots in a Macintosh IIci

△ **Important:** If you are leaving some empty expansion slots in your Macintosh, position the cards for maximum airflow and cooling: leave an empty slot between cards, and if you have six slots in your Macintosh, use the slot closest to the fan last. △

See the guide *Setting Up Your Macintosh* (or other documentation for your Macintosh) for detailed instructions on installing expansion cards.

➤ *See also:* "Ensuring Adequate Ventilation" later in this chapter

Using multiple NuBus cards

If you use two or more NuBus expansion cards in your Macintosh, you need to observe the following precautions to assure safe operation of the computer.

Power requirements and limitations

The combined power consumption of all NuBus cards in your Macintosh must not exceed the limits established for that model.

Expansion cards can draw three types of power from a NuBus slot:

- +5 volt current
- +12 volt current
- –12 volt current

Each card may draw from these currents in varying amounts. Consult the *Special Options and Technical Information* booklet (or other documentation for your Macintosh) and the specifications for each card that you use to determine the combined power consumption for each type of current. Then make certain that the totals do not exceed the recommended limits. (You can calculate the total limits by multiplying the recommended limit per card by the number of slots in your model.)

Type of current	Recommended limit per card
+5 volt	2.0 amps
+12 volt	0.175 amps
–12 volt	0.100 amps

▲ **Warning:** Exceeding the power limits could damage your NuBus cards or the computer. ▲

Ensuring adequate ventilation

When operating, NuBus cards generate heat. If you use several cards in your Macintosh, make certain that you position them to allow maximum air circulation around the cards.

For example, if your Macintosh has six NuBus slots and you are using three cards, place the cards in the second, fourth, and sixth slots (starting from the end opposite the disk drive) to ensure maximum air circulation.

Installing cards in a special slot

Some Macintosh computers can use an expansion card that fits into a special slot, called the *memory cache slot* in some models and the *processor-direct slot* in other models.

△ **Important:** If you plan to use a card in a special slot, make certain that the card you install is designed for your Macintosh. Installing a card designed for a different model could damage the card and the computer. △

The procedure for installing a card in the memory cache slot or the processor-direct slot varies. With some models, such as the Macintosh SE/30, an authorized service provider must install the card. Consult the *Setting Up Your Macintosh* and *Special Options and Technical Information* booklets or other documentation for your Macintosh for details.

Expanding memory on the main circuit board

The RAM in most Macintosh computers is provided in packages called *Single In-line Memory Modules* (SIMMs). Each SIMM consists of a group of RAM chips on a circuit board that has electrical contacts along one edge. This board is plugged into a SIMM socket on the computer's main circuit board.

The RAM in your Macintosh can be expanded by adding SIMM modules to those already installed or exchanging the existing modules for ones that contain chips with greater storage capacity. (In some models, the system RAM can also be expanded by installing a NuBus memory card.)

If you plan to expand the computer's memory, make certain that the chips or SIMMs used are the correct ones for your Macintosh. Consult the *Special Options and Technical Information* booklet or other documentation that came with your Macintosh for information about the RAM chips and SIMMs.

▲ **Warning:** RAM expansion on the main circuit board should be done only by an authorized Apple representative or another qualified technician. Modification of the circuit board by anyone except a qualified technician voids the warranty for your Macintosh and could cause damage. ▲

9

Macintosh Maintenance

Your Macintosh computer is sturdy and requires little maintenance. But like any piece of electrical equipment, it should be handled carefully and in accordance with its design and specifications.

This chapter provides

- some general precautions for setting up and working with the computer
- guidelines for maintaining a safe operating environment for the Macintosh
- instructions for cleaning system components
- instructions for testing and repairing disks
- information about changing the clock battery
- information about Apple service and support

Setup and general care

Follow the suggestions in this section to ensure that your Macintosh stays in good operating condition.

All system components

When setting up and using the Macintosh and its components, be sure to follow these procedures:

- Handle all equipment with care and always place components on a sturdy, flat surface.
- Carefully follow the setup instructions provided with your Macintosh and its components.
- Always hold a cable by its connector when attaching it to or removing it from a component. Don't force a connector into a port on the Macintosh or a component. If you can't get the pieces to join easily, make sure the connector matches the port. You can consult your Apple dealer or a technician for help.
- Turn off the Macintosh and all components before adding or removing any part of the system, and before connecting or disconnecting any cables. If you add or remove a component or its cable while the computer is on, you may damage the Macintosh, the component, or both.
- Be careful not to spill any food or liquid on the computer, keyboard, mouse, or other components. If you do spill something, be sure to turn the Macintosh off and unplug it before attempting to deal with the situation.

▲ **Warning:** Plug the power cords for the Macintosh and its components only into three-prong, grounded outlets. The Macintosh's grounding-type plug is a safety feature; do not defeat the purpose of this plug. Disconnect the power plug if it becomes frayed or otherwise damaged. ▲

Monitor

Whether your Macintosh has a built-in screen or a separate monitor, be sure to follow these procedures:

- Turn down the brightness control on the screen if you leave the Macintosh turned on for extended periods. If the brightness is not turned down, the image on the screen could "burn in" and permanently damage the screen.

  You can also use a "screen saver" program, which dims or varies the image on the screen when the Macintosh has been idle for a specified period of time. These programs are available from independent suppliers and user groups.

- If your Macintosh has a separate monitor, make sure that none of the ventilation openings on the computer or the monitor are covered or obstructed.

- Some large monitors, such as the Apple Two-Page Monochrome Monitor, cannot safely be placed on top of the Macintosh. Follow positioning instructions for the monitor.

Keyboard

Take care not to spill any liquid or greasy or sticky substances on the keyboard. If you spill something on the keyboard and it stops working, follow these procedures:

- If the liquid is thin and clear, unplug the keyboard, turn it upside down to let the liquid drain out, and dry it for 24 hours at room temperature. If the keyboard still doesn't work, take it to your authorized Apple dealer for repair.

- If the liquid is sweet or sticky, unplug the keyboard and take it to your authorized Apple dealer for repair.

Floppy disks and drives

If your Macintosh has an 800K internal or external disk drive, be sure to place the plastic disk-shaped piece (placed in the drive at the factory) in the disk drive whenever you transport the Macintosh or disk drive. If your Macintosh has a SuperDrive, you don't need to use a plastic disk.

Figure 9-1 summarizes the correct and incorrect ways to handle floppy disks.

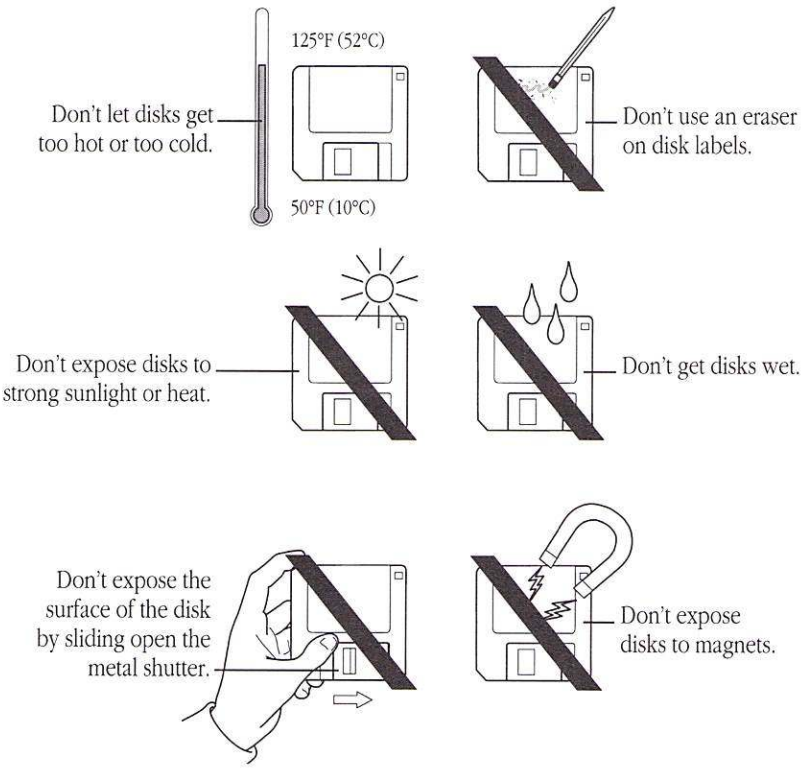


Figure 9-1 Dos and don'ts of handling floppy disks

Do not use high-density disks in 800K disk drives. These disks are meant for use only in SuperDrive disk drives.

➤ *See also:* Chapter 6, "Managing Disks and Disk Drives"

Power supply

The power supply in your Macintosh is a high-voltage component and should not be opened for any reason, even when the computer is off. If the power supply needs service, please contact your authorized Apple dealer or service provider.

Operating environment

The Macintosh is designed to operate reliably in a suitable environment. To maintain this environment:

- Keep the Macintosh and components out of direct sunlight and free from exposure to rain or other moisture.
- Operate the Macintosh only at temperatures between 50 degrees and either 95 or 104 degrees Fahrenheit (between 10 and 35 or 40 degrees Centigrade), depending on the model, and at humidity between 5 and 95 percent. (See the *Special Options and Technical Information* booklet or other documentation for your Macintosh for details.)
- Be certain that no ventilation areas are blocked. Do not put papers, disks, or other items on the air circulation areas of the system, even temporarily. Preventing proper air circulation can cause components to overheat rapidly, which can damage them or lead to unreliable operation.
- If there is interference on the monitor's screen or on a television or radio near your Macintosh, move the affected components farther apart. If two monitors interfere with each other, for example, separate them further.

Cleaning system components

You can clean the exterior of most Macintosh system components, the monitor screen, and the mouse.

Computer and peripheral device cases

To clean the case of your Macintosh or a peripheral device:

- Use a damp, soft, lint-free cloth to clean the computer's exterior. Avoid getting moisture in any openings.
- Don't use aerosol sprays, solvents, or abrasives when cleaning the computer or other components.

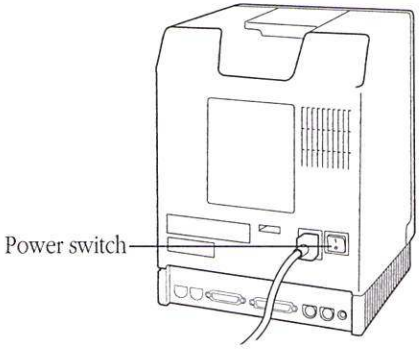
Monitor

Follow this guideline when cleaning the monitor's screen:

- Put household glass cleaner on a soft cloth and wipe the screen. Don't spray the cleaner directly on the screen, because the liquid may drip into the monitor or computer.

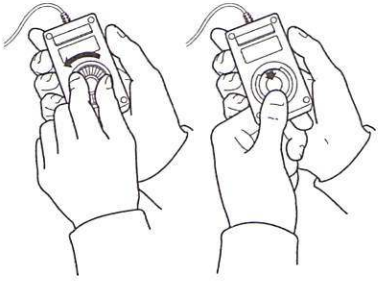
Mouse

The mouse contains a small ball that rolls as you move the mouse. You can keep this ball free of dirt and grease by using the mouse on a clean, lint-free surface and cleaning it occasionally.



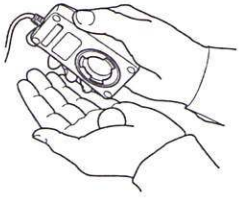
1 To clean the mouse, first turn off the Macintosh.

You should always turn off electrical equipment before disassembling any part.



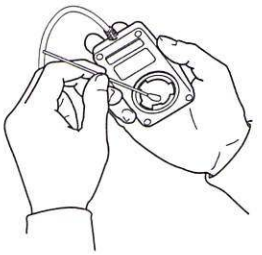
2 Turn the mouse over and open the plastic ring on the bottom that holds the ball.

There are two different types of rings used on the mouse. One is opened by turning the ring counterclockwise, the other is opened by moving the ring downward until it pops out.



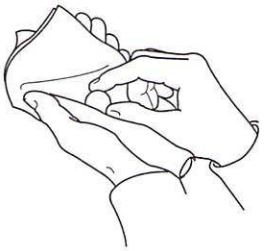
3 Remove the ring and the ball beneath it.

Turn the mouse over while holding one hand underneath it to catch the ring and ball.



4 Clean the three small rollers inside the mouse with a cotton swab moistened with alcohol.

Rotate the rollers to clean all their surfaces.



5 Wipe the mouse ball with a clean, soft, dry cloth.

Don't use any liquid to clean the ball.

6 Gently blow into the mouse case to remove any dust that has collected there, then replace the ball and ring.

Testing and repairing a disk

Both floppy disks and hard disks can become damaged from repeated use and handling. The Macintosh system software comes with some tools for testing disks and repairing some types of damage or wear.

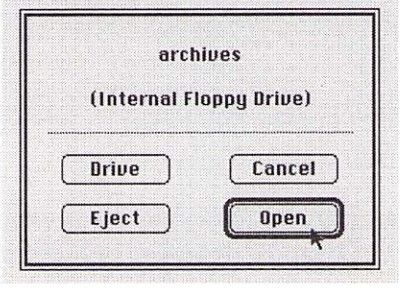
If you see a message reporting that a disk is damaged or unreadable, these tools may help to diagnose and correct the problem.

Using Disk First Aid to test or repair a disk

You can test floppy disks and hard disks with the Disk First Aid application, supplied with system software (on the *Disk Tools* disk). Disk First Aid also repairs some types of damage to disks.

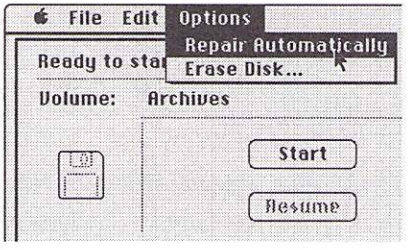
1 To test or repair a disk, start Disk First Aid by double-clicking its icon.

The application opens and presents a dialog box for you to select a disk.

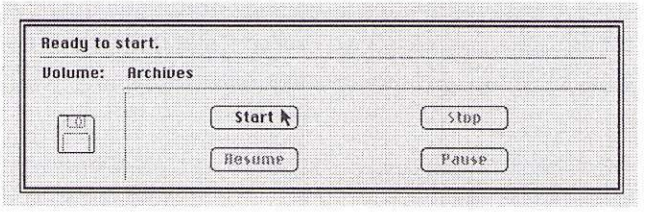


2 Select the disk you want to test and repair, using the Drive and Eject buttons as necessary. Then click Open.

The name of the disk you selected appears, and a message reports that Disk First Aid is ready.

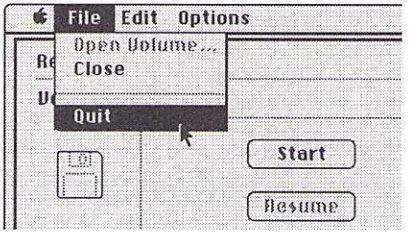


3 If you want automatic repair, choose Repair Automatically from the Options menu.



4 Click Start to begin testing the disk.

A message at the top of the screen reports testing and repair progress and results.



5 When testing and repair are completed, choose Quit from the File menu.

If you want to test another disk, choose Close from the File menu, then select and open the disk and follow steps 3 and 4.

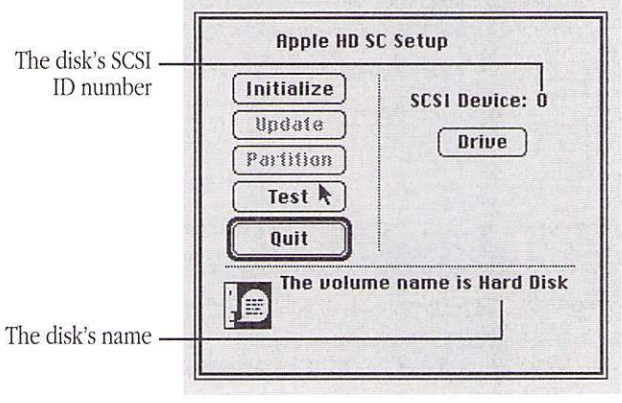
If Disk First Aid doesn't correct the disk problem, try one of the following measures:

- Use Disk First Aid one or two more times with the disk. Occasionally repeating this process corrects the problem.
- Use another disk repair or recovery utility. Some disk repair utilities let you recover information from a damaged disk.
- Consult a technician or other specialist for help.
- Once you have recovered all the information you can, erase (reinitialize) the disk. If this doesn't work, discard the damaged disk.

Using HD SC Setup to test a SCSI hard disk

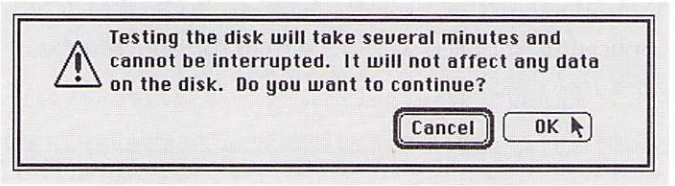
You can test a SCSI hard disk with the Apple HD SC Setup application, supplied with the system software (on the *Disk Tools* disk).

1 Start Apple HD SC Setup by double-clicking its icon.



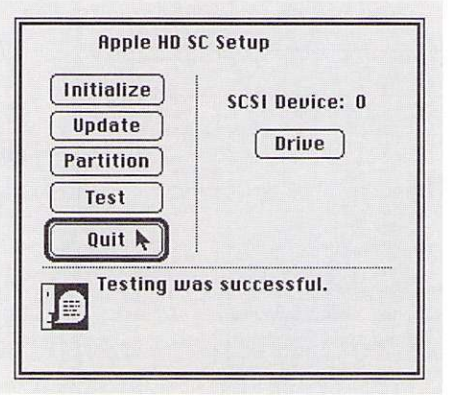
2 Select the disk you want to test, using the Drive button if necessary. Then click Test.

The disk's SCSI ID number is displayed above the Drive button; the disk's name is displayed in the message box at the bottom of the screen.



3 An alert box appears before testing begins, asking you to confirm or cancel the test. Click OK to continue.

Testing begins; the spinning beach ball icon indicates that testing is under way.



4 When a dialog box appears telling you that testing is complete, click Quit.

If the test indicates a problem, you may be able to correct it by using Disk First Aid or another disk repair utility, or you may have to reinitialize the disk. Consult a technician or other specialist for assistance if necessary.

Changing the clock battery

All Macintosh computers have a system clock that runs continuously. When the computer is turned off, a battery maintains the time.

The clock battery on most Macintosh computers is located inside the case. If your system clock begins to keep inaccurate time or stops when the computer is turned off, have your authorized Apple dealer or representative replace the battery. If your battery runs low, you may need to reselect your choice in the control panels and in the Chooser after replacing the battery.

- *Clock battery on Macintosh Plus:* You can change the clock battery in the Macintosh Plus yourself. Instructions for changing the battery are provided in the documentation for the computer. ❖

Service and support

To help you get the best performance from your Macintosh, Apple Computer has established authorized Apple dealers who offer full support. If you need answers to technical questions or information about product updates, your authorized Apple dealer can help you. Apple's technical support organization backs each dealer and international technical support group via an AppleLink network, a state-of-the-art on-line electronic information service, to ensure prompt, reliable assistance.

Your dealer has the latest information on new hardware and software products as well as product updates. If you wish to upgrade your system, your dealer can help you select compatible components.

If your Macintosh or a peripheral device requires service, your local authorized Apple dealer is trained and ready to support you. Apple provides factory-quality parts and the latest available diagnostic equipment to the more than three thousand authorized Apple service centers throughout the world. Apple guarantees parts and warranty labor. (Regulations in each country determine the length of warranty. Some restrictions may apply, depending on the country of original purchase.)

If for some reason you cannot return to the authorized dealer from whom you purchased your system, go to the nearest service location. For the location nearest you, in the United States call (800) 538-9696; in Canada, call (800) 268-7796 or (800) 268-7637. For locations in other countries, either call the Apple headquarters in your country or write to

Apple Computer, Inc. Customer Relations 20525 Mariani Avenue Cupertino, CA 95014-6299 U.S.A	or	Apple Canada, Inc. 7495 Birchmount Road Markham, Ontario L3R 5G2 Canada

Apple also offers service plans designed to meet your needs. One of these is the AppleCare Service Agreement (available in the United States, Canada, and Australia only), which extends full warranty coverage up to three years. Your AppleCare contract will be honored at any participating authorized Apple dealer within the country of purchase—an added benefit if you relocate. Local service means time saved in getting your Apple system back to work.

You can purchase AppleCare at any time, but it's a good idea to purchase it with your system, or at least before your warranty has expired, to avoid an inspection at your own expense.

There are also self-service plans designed to allow large organizations to repair their own equipment. Whether you use your computer at home, in the office, or at school, Apple has a low-cost service plan for you. For details, please see your authorized Apple dealer.

10

Troubleshooting

Occasionally you may experience a problem with your Macintosh. The descriptions of problems, causes, and possible solutions in this chapter should help you solve difficulties with your Macintosh's operation.

Be sure to check the *Special Options and Technical Information* booklet or other documentation that came with your computer for additional troubleshooting information.

General tips

If your Macintosh or a component is not working properly but its problem is not described in this chapter, you can try some general measures that may help you solve the problem.

Take your time

When you see an error message on the screen, you don't have to take an action immediately. The message will stay on the screen until you click the button or turn off the Macintosh.

To help diagnose and correct the problem, try to gather as much information about the situation as you can:

- Make a note of exactly what you were doing when the problem occurred. Write down the message on the screen and its ID number (if any) as well as the programs you were using and the names of any items you know have been added to the System Folder since the system software was installed. (It's a good idea to keep a list of such items on a piece of paper.) This information will help a service person diagnose the problem should you need to take the computer to your authorized Apple dealer for repair.
- Check the screen for any clues that are visible. Is a menu title selected? What programs and document icons are open? Note anything else that seems relevant to the situation.
- If you were writing new text and were not able to save it before the problem occurred, you can write down the text that's still visible on the screen so that some of your work will be easy to replace.
- Ask other Macintosh users about the problem you're having; they may have a solution for it.

Start over

Often you can eliminate a problem simply by clearing the computer's memory and starting over.

- If possible, save any open documents before restarting the Macintosh. (If your system is frozen and does not respond to any input, or if you have a "bomb" message on the screen, saving may not be possible. You can try pressing ⌘-Option-Esc to quit the program you were using when the problem occurred; if this works, you can then save the documents that were open in other programs before restarting.)
- Choose Restart from the Special menu or from the dialog box, if you can. If you can't choose Restart, turn off the Macintosh using the power switch, wait at least 10 seconds, then turn it on again. (Occasionally when there's a problem, the power switch doesn't turn off the computer. In that case, unplug it.)
- If you suspect that the problem is with a peripheral device, such as a printer or external hard disk, turn it off for 10 seconds or more, then turn it on again and restart the Macintosh.

Make certain that all parts of the system software are from the same version and that you have only one System Folder on your startup disk

These tips help keep your system software in good working order:

- Before you install a new version of system software, be sure to make a backup copy of the version you are replacing in case you need to use it at a later time, to run a program that is incompatible with the new version, for example.
- If the startup disk's System Folder becomes damaged, either reinstall the software on that disk or copy the System Folder from a good disk onto the disk with the damaged System Folder.
- When you install a new version of system software, verify that the new versions of drivers for the printer and other types of devices you use are in the System Folder of your startup disks.

Make certain that your programs are in good working order

Here are tips for keeping your application programs working effectively:

- If you have problems with an application program, replace it with another working copy from the original program disk.
- If a new copy of the application program doesn't correct the problems, check with the program's manufacturer to make sure that the version of the program you have is compatible with the version of the Macintosh system software you are using. (You can often upgrade to a newer version of the program free or for a modest fee.)

- Be sure to keep only one System Folder and only one version of each application program on your hard disk. You can use the Find command to see if there is more than one System Folder on your hard disk.
- If you use any special programs that customize your System Folder (system extensions or control panels), check with the sources or developers of those programs before you install them to make sure that they are compatible with the version of Macintosh system software you're using.

Keep backup copies of your work, your programs, and your System Folder

To ensure that the information and the programs you use with your Macintosh will always be available, back up your work regularly and make a backup copy of each program when you begin using it.

- If you use a hard disk for most of your work, be sure to make copies of all key programs and files on floppy disks.
- To protect essential information, such as business archives and financial records, consider making duplicate backup copies on floppy disks and storing them in another location.

Rebuild your desktop regularly

A process known as "rebuilding the desktop" helps your Macintosh keep track of data on your startup disks.

- To rebuild the desktop of a startup disk, hold down the Option and ⌘ keys while starting up your computer. Keep holding down the keys until you see a message asking whether you want to rebuild the desktop.
- Follow the rebuilding procedure for each of your startup disks once a month or every other month.

Avoiding data loss or damage

In recent years, many computer users have experienced problems with *viruses*—malicious programs that damage files or erase disks. A virus could be introduced into your Macintosh system from a disk you or someone else put in a disk drive, from a network device such as a file server, or from an electronic bulletin board service.

Check regularly for viruses

You can use any of several virus-detection and elimination programs to check your Macintosh disks for viruses. Such programs are available from user groups, computer bulletin boards, and dealers.

Even if you don't notice problems with your computer's operation or with the information on your disks, you should check for viruses frequently if you exchange disks or information with other users.

A good anti-virus strategy includes these elements:

- Check your primary disk or disks regularly with a virus-detection program and correct any problems it finds.
- Whenever you get a disk from anyone—even if it's commercial software—check it for viruses before using it or copying anything from it to your hard disk.
- If your Macintosh is on a network or you use a modem to connect with information services or bulletin boards, check for viruses as often as it's practical—ideally, each time you copy any information from an outside source.
- If you are part of a work group that includes a number of Macintosh users, set up a "virus-detection station" that everyone can use to check disks (and to copy the latest version of virus-detection software if your group has a site license for it).

- If you give information to other Macintosh users on disk or send information electronically, make certain that there are no viruses on your system before distributing the information.
- Since new viruses often appear, make sure you always have the latest version of any virus-detection software.
- To avoid compatibility problems, be sure to use *only one* virus detection program.

Problems getting the computer to operate

Here are some potential problems, likely causes, and suggested solutions.

The computer is turned on but the screen is dark

Cause: The Macintosh or the monitor is not getting power, or the screen isn't getting light.

Try these actions:

- Check that the power cord is plugged in and firmly connected to the computer and that the electrical socket has power.
- If you have a separate monitor, check that the monitor is turned on.
- Check the screen's brightness control and turn it up if necessary.
- If you use a screen saver program, press a key or move or click the mouse to turn off the screen saver.
- Turn off the computer and turn it on again.

When you start up, the screen is bright but the desktop doesn't appear

Cause: The system software is not on the disk or the disk drive is not operating properly.

When you turn on the Macintosh, you should see one of the icons shown in Figure 10-1.

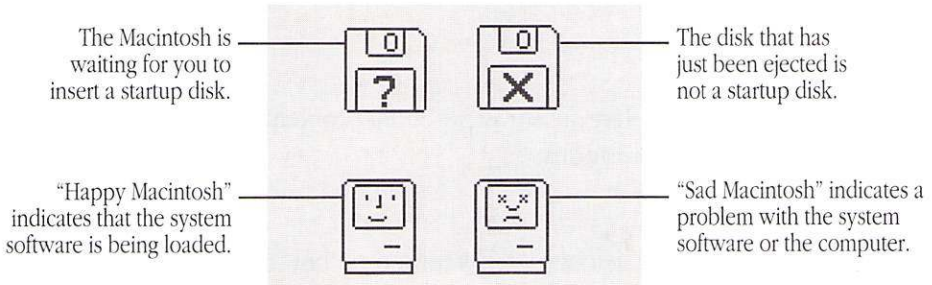


Figure 10-1 Icons the Macintosh might display at startup

Try these actions:

- If you see the "happy Macintosh" icon, you don't need to do anything. The system software is being loaded.
- If you see a disk icon with a blinking question mark on it, your system is waiting for you to insert a startup disk in the floppy disk drive. This icon means that the computer didn't recognize your startup hard disk, there is no system software on your hard disks, or the system software on your hard disks has been damaged.

  If this happens, use another startup disk to start up and check to see if the hard disk icon appears on the desktop. (If not, see your dealer.)

- If you see the disk icon with an *X* on it, that means the computer didn't find a System Folder on the floppy disk you inserted. Wait while the computer checks your hard disks for a System Folder.
- If you see the "sad Macintosh" icon, there's a problem with the system software on the disk or possibly with the computer hardware.

  If a floppy disk was inserted, eject the disk by turning off the computer, then holding down the mouse button while you turn the computer on again. (Holding down the mouse button at startup ejects all floppy disks.) Try starting up with a different startup disk. If the "sad Macintosh" icon appears again, see your dealer.

The pointer doesn't move, or moves erratically, when you move the mouse

Cause: The mouse is not connected properly or its signals are not reaching the computer.

Try these actions:

- Turn off the computer using the power switch, then check that the mouse cable is connected properly at both ends.
- Clean the mouse. (See the instructions in Chapter 9.)
- Restart the Macintosh with a different startup disk. If the pointer still doesn't move, consult your dealer.

➤ *See also:* "The Pointer 'Freezes' on the Screen" later in this chapter

Typing on the keyboard produces nothing on the screen

Causes: No insertion point or text is selected; the keyboard is not connected properly; or the keyboard's signals are not reaching the computer.

Try these actions:

- Make sure the program you want to type in is the active program.
- Place the pointer in the active window and click to set an insertion point or drag to select text (if applicable).
- Turn off the computer, then check that the keyboard cable is connected properly at both ends.
- If the connections are secure and typing still yields no results, shut down and turn off the Macintosh, then unplug the keyboard cable. Connect the cable to another Apple Desktop Bus port on the computer and the keyboard. (You may have to switch the mouse to another port also.) If typing still shows nothing on the screen, the problem is most likely in the keyboard itself.
- Restart the Macintosh with a different startup disk. If typing still doesn't produce text on the screen, consult your dealer.

You can't save anything onto a floppy disk

Cause: The disk is full, the disk is damaged or locked, or the disk drive is not working properly.

Try these actions:

- Make sure the locking tab on the back of the disk at the top left is in the down (unlocked) position. (A hole should not be visible.) See Chapter 6 for more information.
- If you see a message reporting that the disk is not initialized, and you know that it has been initialized, eject the disk and carefully insert it again. If the same message appears, the disk is probably damaged. (You may be able to recover the information on it with Disk First Aid or a disk-recovery program.)
- If you see a message that the disk is full, eject that disk and insert another that has adequate space for your document, or erase unneeded files from the disk.
- Check the disk for obvious damage to the plastic case or the sliding metal shutter.
- Insert a different disk and try saving again. If you can't save on the second disk, the problem may be with the disk drive.
- Before concluding that the disk drive is the problem, save your files on a disk in a different drive, if you have one, and then restart the Macintosh. Try saving something on a disk that you know is not damaged placed in the suspect drive. See your dealer if saving fails again.

You can't eject a floppy disk

Cause: The signal to eject the disk is not reaching the computer or the disk or drive is damaged.

Try these actions, in the order presented here:

- Hold down the ⌘ and Shift keys and press the number 1 key in the top row of the keyboard to eject a disk in the internal drive; press ⌘-Shift and the number 2 to eject a disk in an external floppy drive or the second internal drive.
- If the preceding action doesn't work, shut down and turn off the Macintosh. If the disk isn't ejected, then hold down the mouse button when you turn the computer on again.
- If neither of the preceding actions works, locate the small hole to the right of the disk drive's opening, and carefully insert the end of a large straightened paper clip into it. Press gently until the disk is ejected, but *do not force it.* (See Figure 10-2.) This method of ejecting a disk should be used only when the other suggested methods do not work. If this method doesn't work, take the computer or disk drive to your dealer to have the disk removed.

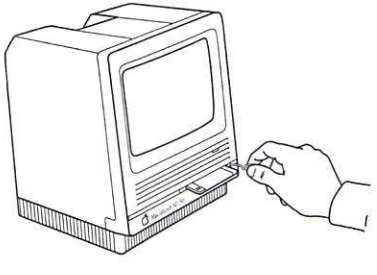


Figure 10-2 Ejecting a disk with a straightened paper clip—a last resort

You can't start up from a hard disk or can't see its icon on the desktop

Cause: The computer did not recognize the disk's signals or the disk drive is not working properly.

Try these actions:

- If the hard disk drive is an external one, make sure it is turned on and its cable is connected firmly, then restart the Macintosh.
- If the disk drive is an internal one, turn off the Macintosh, wait at least 10 seconds, then turn it on again.
- If the hard disk is your startup disk, start up with a different disk and, if the hard disk's icon appears, reinstall the system software on the hard disk.
- If you have more than one hard disk in your Macintosh system, check the SCSI ID number of each external hard disk and all other SCSI devices connected to your computer. If two devices have the same ID number or if any external device has the ID number 7 or 0, the computer will not recognize one of the devices. Change the number to a number not currently used. See Chapter 8 for more information.

➤ *See also:* "Testing and Repairing a Disk" in Chapter 9

A dialog box with a bomb appears

Cause: Your system has a software problem.

Try these actions:

- Write down what you were doing when the message appeared, and write down the number on the message, if there is one.
- Click the Restart button on the screen (if one is displayed as part of the message). The computer may start up normally.
- If no Restart button is displayed (or clicking it doesn't work), use the power switch to turn off the Macintosh, wait at least 10 seconds, then turn it on again. The system may start up normally. (Occasionally it's necessary to pull the plug, if the power switch doesn't turn off the computer.)
- If the Macintosh doesn't restart with the startup disk you were using when the problem occurred, try to start up with a different startup disk.
- If the Macintosh starts up with a different disk, reinstalling the system software may correct the problem with the first startup disk.
- Check the startup disk and program you were using when the bomb message appeared. You may have been using elements of the system software that were incompatible with each other or with the program you were using.
- Make sure that all programs, desk accessories, and system extensions you're using are compatible with the system software.

- Sometimes incompatible system extensions or control panels can cause the system to display a bomb message. Restart while holding down the Shift key; this disables all system extensions. If startup is normal with this method, then remove all extensions and put them back into the System Folder one at a time, starting up after you add each extension. This procedure should identify any incompatible extensions.
- Try removing any other items you recently placed in the System Folder, and then restart to see if the computer works all right.

△ **Important:** Always be sure to use the Installer when you upgrade to a new version of Macintosh system software, and always verify that the programs you use are compatible with the version of system software you have installed. △

The pointer "freezes" on the screen

Cause: Your system has a software problem.

Try these actions:

- Press ⌘-Option-Esc to close the program in use when the problem occurred. If this works, you can then save the documents open in other programs before restarting.
- Turn off the Macintosh with the power switch, wait at least 10 seconds, then turn it on again.
- If the Macintosh doesn't restart with the same system disk, try to start up with a different startup disk.
- If the Macintosh starts up with a different disk, check the startup disk and program you were using when the system froze. You may have been using elements of the system software that were incompatible with each other or with the program you were using. Reinstalling the system software may correct the problem.

△ **Important:** Always be sure to use the Installer when you upgrade to a new version of Macintosh system software, and always verify that the programs you use are compatible with the version of system software you have installed. △

Printing problems

If you have a printer connected to your Macintosh, you might encounter one of the following situations. Consult your printer manual for additional troubleshooting suggestions.

The printer doesn't print your document

Cause: The Print command isn't reaching the printer or the printer isn't working properly.

Try these actions:

- Check that the printer is turned on and warmed up (if it's a LaserWriter, it should have printed a sample page).
- Check the cable connections to the printer.
- If your printer is an ImageWriter, make sure that the Select light is on. (Press the Select button to turn the light on.) If this is the problem, a dialog box on the screen may inform you that the printer is not responding.
- Check that the printer (and its name, if it's a LaserWriter) is selected in the Chooser. See "Choosing a Printer" in Chapter 4.
- If the Chooser does not show an icon for the type of printer you want to use, place the driver or drivers for that printer in the Extensions folder (in the System Folder of your startup disk) and restart the Macintosh. See Chapter 4 for more information.

You try to print and you see an error message

Cause: The printer has received conflicting signals.

Try these actions:

- Make sure the printer is turned on and warmed up.
- Make sure that everyone on the network is using the same version of the printer driver. (You can use the System 7 printer drivers with earlier versions of system software.)
- If your printer is an ImageWriter, check that the select light is on. Press the Select button to turn the light on, and try to print again.
- If you see an error message stating that the printer could not print your document, turn off the printer for at least 10 seconds, then turn it on again and wait for the printer to warm up before trying to print again.

Problems working with programs and system software

You may occasionally have a problem with programs and files such as aliases or items you put in the Apple menu.

The Apple menu does not contain all the items it should

Cause: All items have been removed from the Apple Menu Items folder, or that folder is not inside the System Folder.

Try these actions:

- Use the Find command to locate the Apple Menu Items folder. If that folder is not in the System Folder, put it there.
- If the Apple Menu Items folder is inside the System Folder, open it to see if any items are inside the folder. If not, put the items you want to appear in the Apple menu inside that folder.

You open an alias and nothing happens or you see a message reporting that the original file isn't available

Cause: The alias has been damaged or the original file has been removed.

Try these actions:

- Select the alias and choose Get Info from the File menu. Then click the Find Original button to locate the original. (The message on the screen may provide the information you need.)
- Locate the original file and make another alias for it, then replace the damaged alias with the new one.

The control panel settings change unexpectedly

Cause: The battery needs changing. See an authorized service provider for a new battery.

A

Appendixes

Keyboards and Character Sets

You can choose from several keyboards for use with most Macintosh computers; the layout and selection of keys varies somewhat among the different keyboards.

On all Macintosh keyboards you can use *modifier keys,* such as Option, ⌘, and Shift, to type optional characters. The Key Caps desk accessory shows the location of optional characters for each font installed in the System file.

Keyboard layouts

The illustrations that follow show the layouts of the Macintosh Classic keyboard and the Apple keyboards. Each of these keyboards can be used with several Macintosh computers.

➤ *See also:* "Using Special Keys and Indicators on the Keyboard" in Chapter 1
Appendix D, "Special Aids for Using the Mouse, Keyboard, and Screen"

Macintosh Classic keyboard

Power On key: On some models of the Macintosh, you press this key to switch on your computer. On the Macintosh Classic, this key has no function.

Tab key: Moves the insertion point horizontally to the next stopping place (such as a tab stop or data field in a dialog box or program).

Caps Lock key: A locking Shift key for letters only (numbers and symbols aren't affected).

Shift key: Produces uppercase letters (or the upper character on the key).

Control key: Like the ⌘ key, works in combination with other keys to provide shortcuts or modify other actions.

Option key: Produces special characters when pressed in combination with other keys; also modifies other actions.

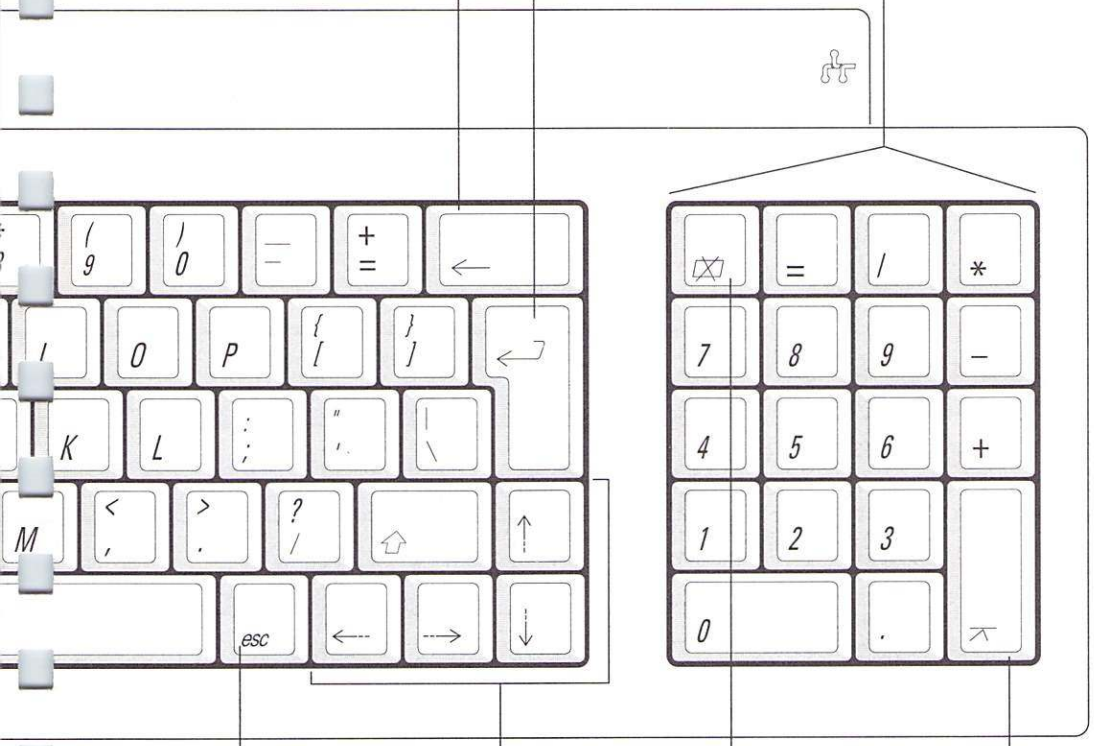
Command key: Works with other keys as an alternative for choosing a menu command or (in some programs) canceling an operation in progress, such as printing.

Figure A-1 The Macintosh Classic keyboard

Delete key: Deletes any material currently selected, or whatever character is to the left of the insertion point.

Return key: Moves the insertion point to the beginning of the next line. In a dialog box, pressing Return is the same as clicking the outlined button.

Numeric keys: These keys produce numbers and mathematical symbols; some programs allow you to use these keys as special function keys to initiate an action.



Esc key: *Esc* stands for *Escape;* the function of this key depends on the program you're using.

Arrow keys: Move the insertion point, as an alternative to using the mouse. In some programs, the arrow keys have other functions.

Clear key: Deletes the current selection, just as the Delete key does. In some programs, Clear has other functions.

Enter key: In a dialog box, pressing Enter is the same as clicking the outlined butt (or pressing Return); some programs require that you use Enter (not Return) to confirm information you have provided.

Apple Keyboard

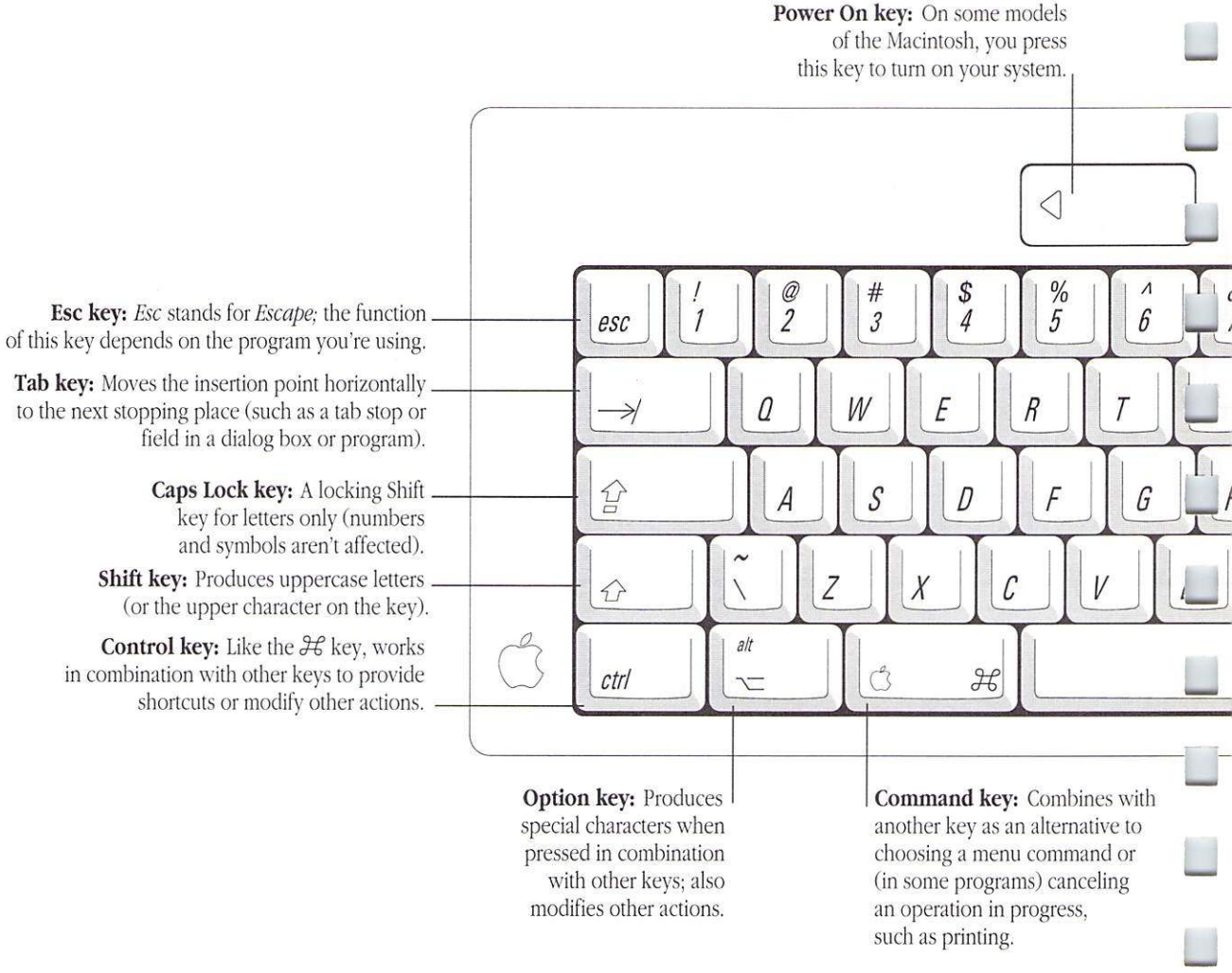
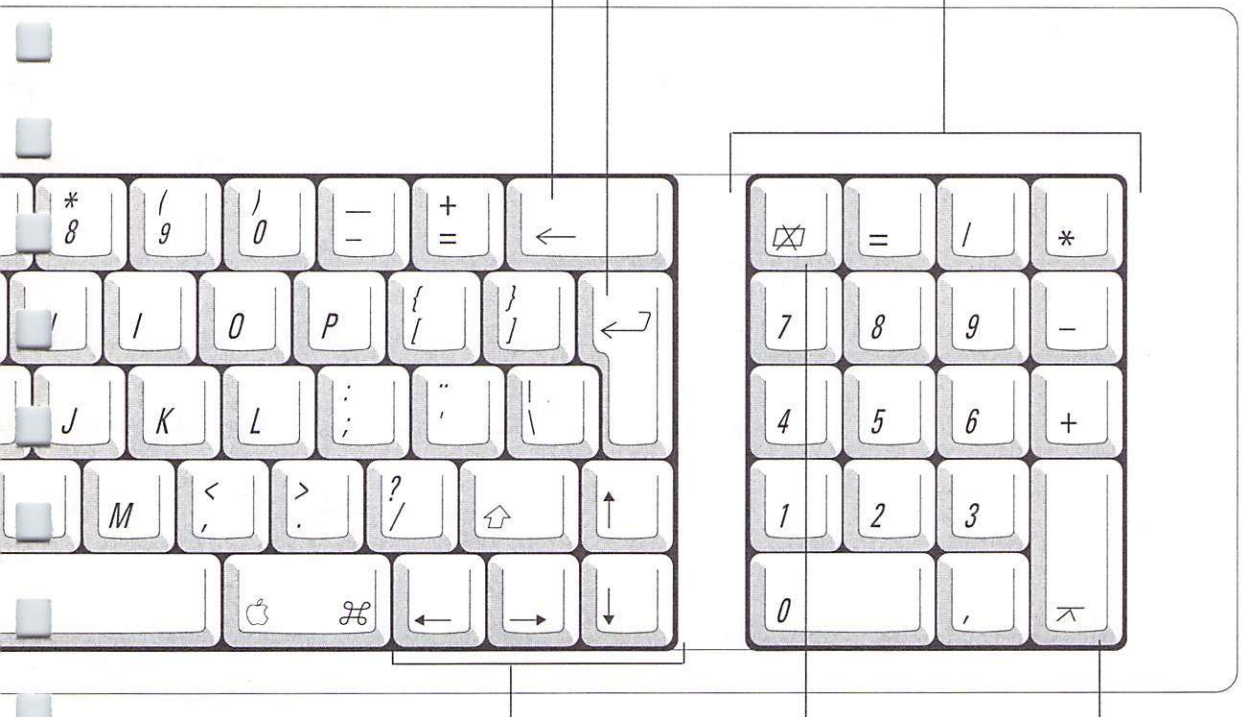


Figure A-2 The Apple Keyboard

Delete key: Deletes any material currently selected, or whatever character is to the left of the insertion point.

Return key: Moves the insertion point to the beginning of the next line. In a dialog box, pressing Return is the same as clicking the outlined button.

Numeric keys: These keys produce numbers and mathematical symbols; some programs allow you to use these keys as function keys to initiate an action.



Arrow keys: Move the insertion point, as an alternative to using the mouse. In some programs, the arrow keys have other functions.

Clear key: Deletes the current selection, just as the Delete key does. In some programs, Clear has other functions.

Enter key: In a dialog box, pressing Enter is the same as clicking the outlined button (or pressing Return); some programs require that you use Enter (not Return) to confirm information you have provided.

Apple Extended Keyboard

Function keys: Some programs allow you to use function keys to give commands. You can assign commands or action sequences to function keys with special utility programs.

Esc key: *Esc* stands for *Escape;* the function of this key depends on the program you're using.

Tab key: Moves the insertion point horizontally to the next stopping place (such as a tab stop or field in a dialog box or program).

Caps Lock key: A locking Shift key for letters only (numbers and symbols aren't affected).

Shift key: Produces uppercase letters (or the upper character on the key).

Control key: Like the ⌘ key, works in combination with other keys to provide shortcuts or modify other actions.

Option key: Produces special characters when pressed in combination with other keys; also modifies other actions.

Command key: Combines with another key as an alternative for choosing a menu command or (in some programs) canceling an operation in progress, such as printing.

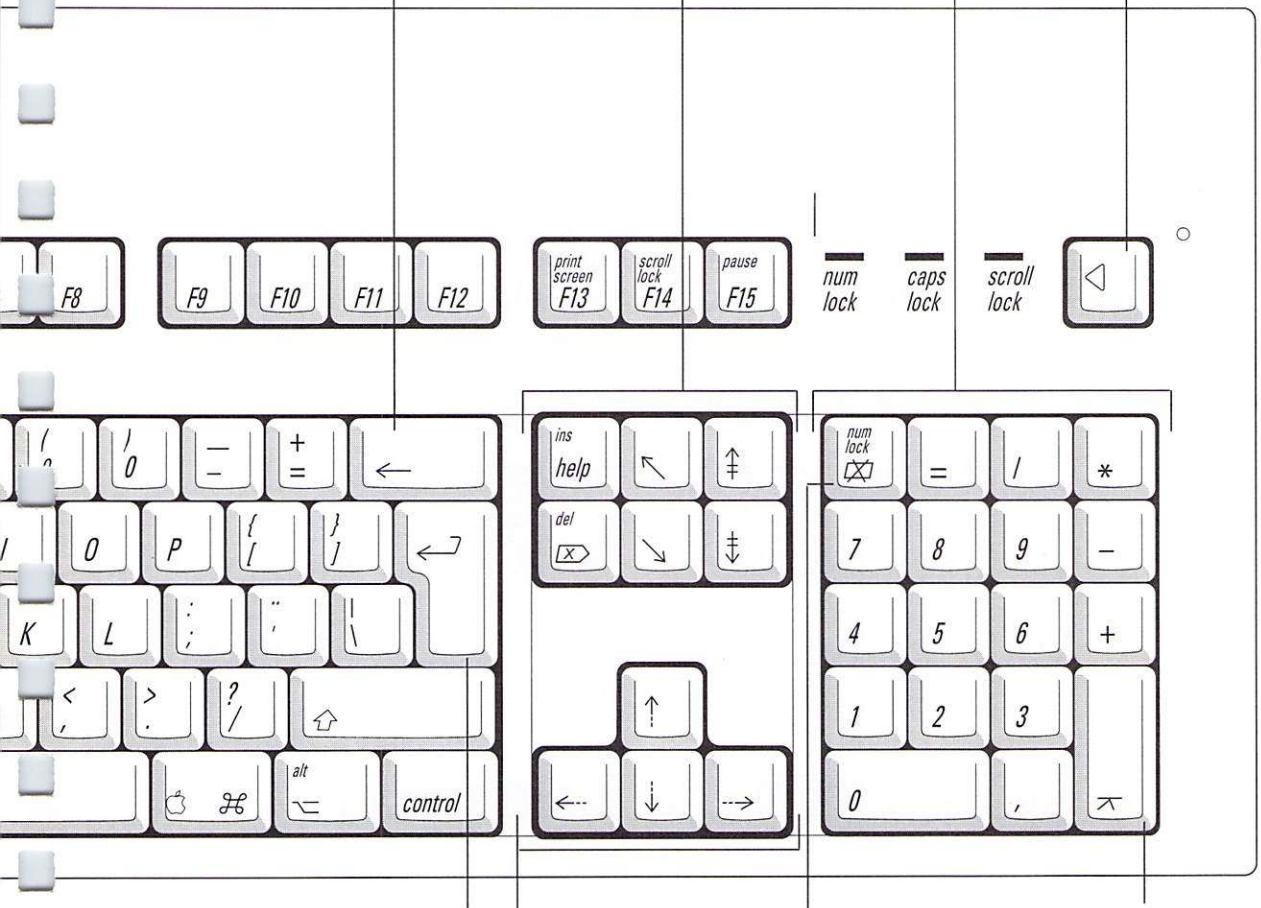
Figure A-3 The Apple Extended Keyboard

Delete key: Deletes any material currently selected, or whatever character is to the left of the insertion point.

Special keys: The function of these keys depends on the operating system and program you're using.

Numeric keys: These keys produce numbers and mathematical symbols.

Power On key: On some models of the Macintosh, you press this key to turn on your system.



Return key: Moves the insertion point to the beginning of the next line. In a dialog box, pressing Return is the same as clicking the outlined button.

Arrow keys: Move the insertion point, as an alternative to using the mouse. In some programs, the arrow keys have other functions.

Clear key: Deletes the current selection, just as the Delete key does. In some programs, Clear has other functions.

Enter key: In a dialog box, pressing Enter is the same as clicking the outlined button (or pressing Return); some programs require that you use Enter (not Return) to confirm information you have provided.

Special characters

You can produce a variety of optional characters by pressing the Option key or Option and Shift keys in combination with certain character and number keys.

Viewing special characters with Key Caps

The Key Caps desk accessory shows you the standard and optional character sets produced when modifier keys, such as Shift and Option, are pressed. Key Caps is supplied with the Macintosh system software.

You open Key Caps by choosing its name from the Apple menu or by double-clicking its icon.

Figure A-4 shows the Key Caps window with optional characters available in the Monaco font and special characters available when the Option key is pressed on the Apple Extended Keyboard.

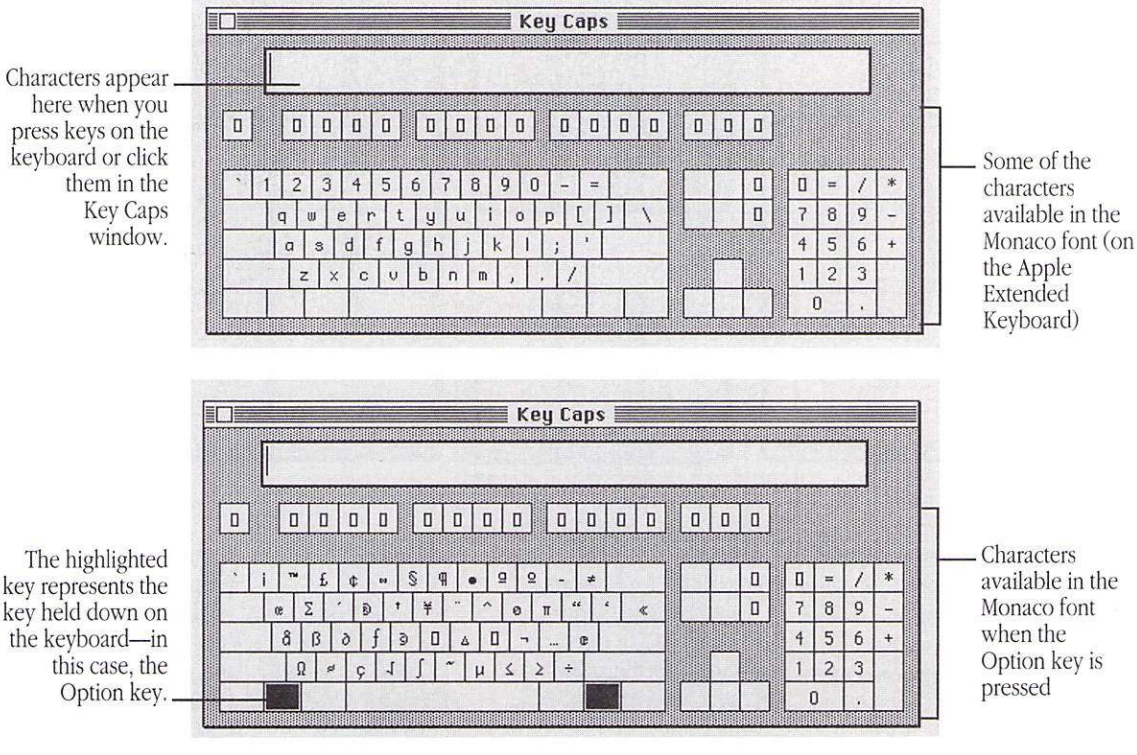


Figure A-4 Special characters displayed by the Key Caps desk accessory

The Option and Shift keys together and the Control key also produce optional characters in some fonts. (There is no Control key on the Macintosh Plus keyboard.)

You can display the character sets for other fonts installed in your System file by choosing the name of the font from the Key Caps menu. (See Figure A-5.)

Figure A-5 The Key Caps menu (available when Key Caps is in use)

Typing accented characters

Using the Option key with certain other keys lets you enter international language characters if you're using a U.S. keyboard file. Table A-1 shows the accent marks and the key combinations that produce them.

Table A-1 Option-key combinations for accent marks

Accent mark	Key combination
Grave accent (`)	Option-`, then type the character to be accented
Acute accent (´)	Option-e, then type the character
Circumflex (^)	Option-i, then type the character
Tilde (~)	Option-n, then type the character
Umlaut (¨)	Option-u, then type the character
The letter c with a cedilla (ç)	Option-c

If you type an accent mark with a character that does not accept one, the Macintosh produces the accent mark followed by the character you typed.

Using Both System 7 and an Earlier Version of Macintosh System Software

Many Macintosh users have access to more than one computer. You may sometimes need to use an earlier version of the system software.

If you use both System 7 and an earlier version of the system software, such as System 6, you should be aware of the following differences between the systems.

Sharing a printer

If computers on a network share one or more printers, all computers should use the same printer drivers. Otherwise, the printer will be reinitialized each time someone prints a document using a different driver.

Updating printer drivers for Macintosh computers using System 7 and System 6 on a network

If your Macintosh is on a network with computers that use both System 7 and System 6, you should update the printer drivers for printers on the network. The System 7 printer drivers also work with System 6.

Updating printer drivers is a simple process. Use the Installer program provided on the *Printing* disk for System 7 software; this disk also contains the System 7 printer drivers. Figure B-1 shows the icons of the two Installer files you use for updating printers.

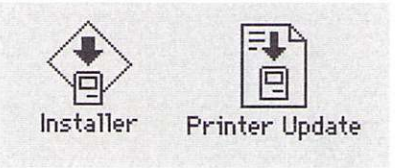


Figure B-1 The icons for the Installer and Printer Update files

You can store these files on a file server or shared disk. You don't need to use the original disk to perform the update.

The following steps describe how to update printer drivers using the *Printing* disk supplied with System 7 software.

1. **Insert the *Printing* disk and double-click its icon to open it.**

   The disk's window opens.

2. **Double-click the icon of the Installer to start the program.**

   The Installer's Welcome dialog box appears. It shows the icons of the printer drivers and explains the installation options.

3. **Click OK to remove the dialog box.**

   The Easy Install dialog box appears. It lists the printer drivers the Installer will update and names the disk on which the drivers will be installed. (See Figure B-2.)

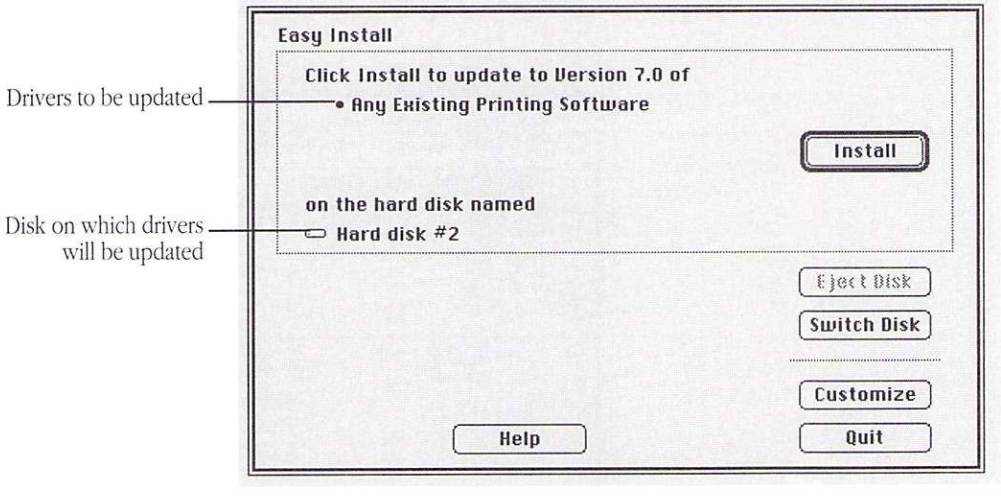


Figure B-2 The Easy Install dialog box for updating printer drivers

4. **If you want to update printer drivers on a different disk, click the Switch Disk button until the name of the disk you want appears.**

   Skip this step if the disk you want is already named.

5. **If you want to add different printer drivers from the ones listed, click the Customize button, then choose the names of the drivers you want to add.**

   When you click Customize, the custom installation dialog box appears, showing a list of the printer drivers available. Shift-click to choose multiple drivers in the list. (See Figure B-3.)

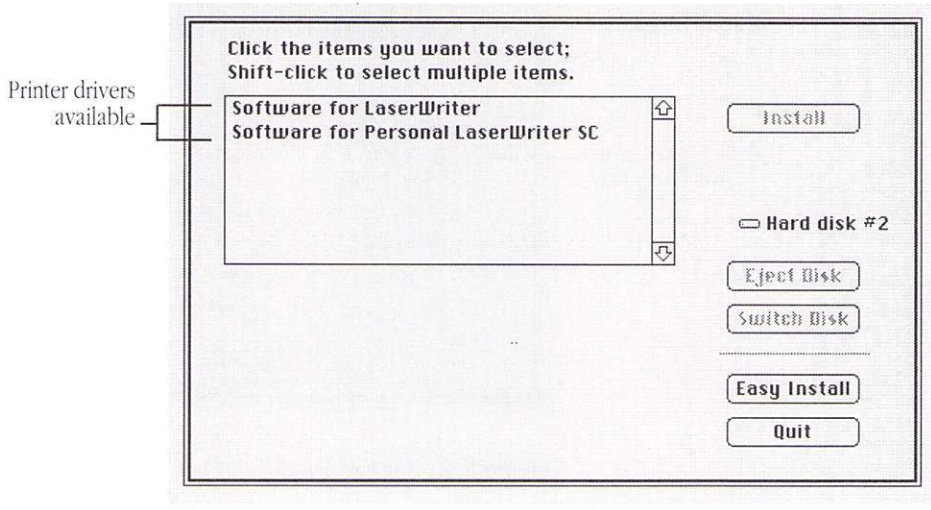


Figure B-3 The custom installation dialog box for updating printer drivers

   Skip this step if you just want to update drivers already on your disk.

6. **Click Install when you are finished choosing drivers to update.**

   Updating begins. Status messages report progress.

7. **Click Restart when you see a dialog box reporting that installation was successful.**

   Figure B-4 shows the dialog box reporting successful installation.

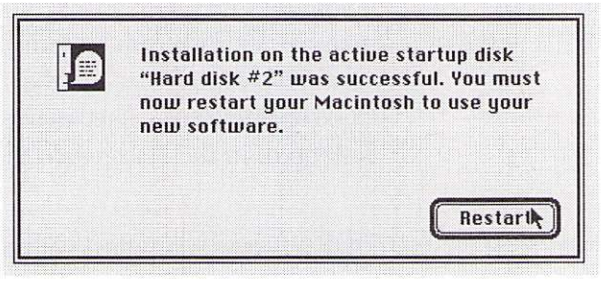


Figure B-4 The "Installation was successful" dialog box

   The Macintosh restarts when you click the Restart button.

   (If a dialog box appears reporting that installation was not successful, try again.)

Using the Finder

You'll notice that some items look different when you use System 7 files or disks with a Macintosh that uses an earlier version of system software.

Extra folders on disks used with System 7

If you use a disk with a Macintosh that has System 7 installed and later use that disk with an earlier version of system software, you'll notice two extra folders on the disk. These folders are named Desktop and Trash. They may contain items that were either on the desktop or in the Trash when the disk was used with System 7.

Desk accessories and fonts

Desk accessories supplied with System 7 can't be used with an earlier version of system software. These items will have document icons; they can't be opened.

TrueType fonts can't be used with system software version 6.0.7 or earlier.

➤ ***See also:*** "Appendix B of the *Macintosh Networking Reference*

Exchanging Disks and Files With MS-DOS Computers

Many Macintosh computers have an internal Apple SuperDrive floppy disk drive. The SuperDrive can read and initialize 3.5-inch disks for both Macintosh computers and for computers that use the MS-DOS operating system.

You use the utility program Apple File Exchange to initialize disks in the MS-DOS format and to convert files from MS-DOS computers for use in a Macintosh computer.

Using Apple File Exchange for MS-DOS disks and files

Apple File Exchange is supplied on one of the disks provided with Macintosh system software. The program and three special *translator* files, which convert documents between Macintosh and MS-DOS format, are stored in the Apple File Exchange Folder.

Figure C-1 shows the Apple File Exchange icon.

Figure C-1 The Apple File Exchange icon

Initializing an MS-DOS disk in a SuperDrive

You can initialize a high-density disk or a normal-density disk in MS-DOS format using a SuperDrive and Apple File Exchange.

The following steps describe how to initialize a high-density disk in MS-DOS format:

1. **Start Apple File Exchange by double-clicking its icon.**

   The program's window opens. The contents of the active window are listed on the left side and an empty list box appears on the right side.

2. **Place a blank high-density disk in the SuperDrive.**

   A dialog box appears, reporting that the program can't read the disk and asking if you want to initialize it. This dialog box shows the names of formats available in Apple File Exchange, including Macintosh and MS-DOS. (See Figure C-2.)

   (You can initialize a disk that is not blank by inserting it, clicking the Drive button until its name appears in the window, and choosing Erase Disk from the File menu.)

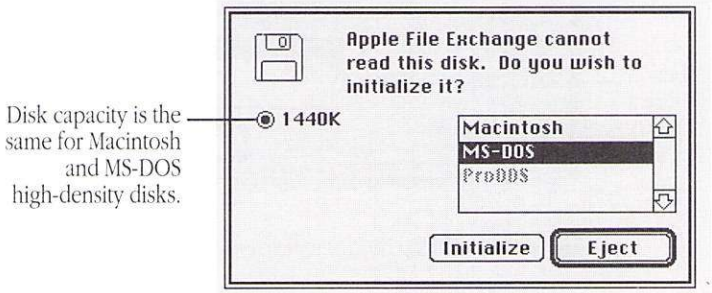


Figure C-2 Dialog box for initializing a high-density disk

3. **Click MS-DOS, then click the Initialize button.**

   The disk is initialized in MS-DOS format. When initialization is completed, a dialog box appears, asking you to name the disk.

4. **Type a name for the disk, then click OK.**

   Use a valid MS-DOS name—up to eight characters, followed by an optional period and up to three characters.

   The dialog box closes, and the name of the disk you initialized appears above an empty window. This disk's icon doesn't appear on your Macintosh screen (because the Macintosh cannot recognize a disk in MS-DOS format).

5. **Choose Quit from the File menu when you are finished using Apple File Exchange.**

- *Initializing a normal-density disk in MS-DOS format:* You can also use Apple File Exchange to initialize a normal-density 3.5-inch disk for MS-DOS files. Follow the previous steps, but place a normal-density disk in the SuperDrive and click 720K in the dialog box that asks whether you want to initialize. (See Figure C-3.) ❖

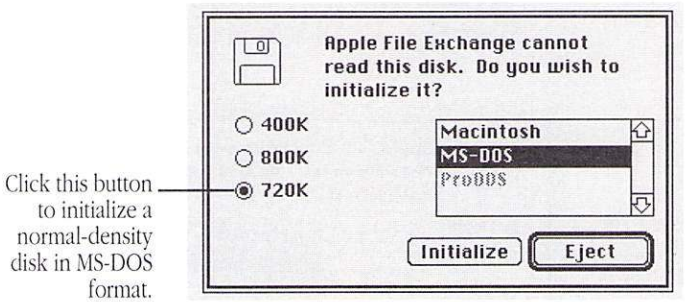


Figure C-3 Dialog box for initializing a normal-density disk

- *5.25-inch disks:* Some Macintosh computers can use an external 5.25-inch floppy disk drive that can read files from MS-DOS disks. An internal adapter or expansion card is required to connect a 5.25-inch disk drive to the Macintosh. Apple File Exchange can translate files from these disks and store files on them. ❖

Converting files to and from MS-DOS format

Apple File Exchange converts between Macintosh files and MS-DOS files. The translator program provides two built-in methods of translation—text and binary. You use text translation for text files, and binary translation for other files.

In addition, Apple File Exchange can use special translator files designed to convert files into formats that specific programs can use. One of these special translator files is provided with Apple File Exchange: DCA-RFT/MacWrite, which converts documents between MacWrite® format for the Macintosh and Document Content Architecture/Revisable Form Text format (used by many word-processing programs) for MS-DOS.

Figure C-4 shows the Apple File Exchange window with a Macintosh hard disk on the left and an MS-DOS disk on the right.

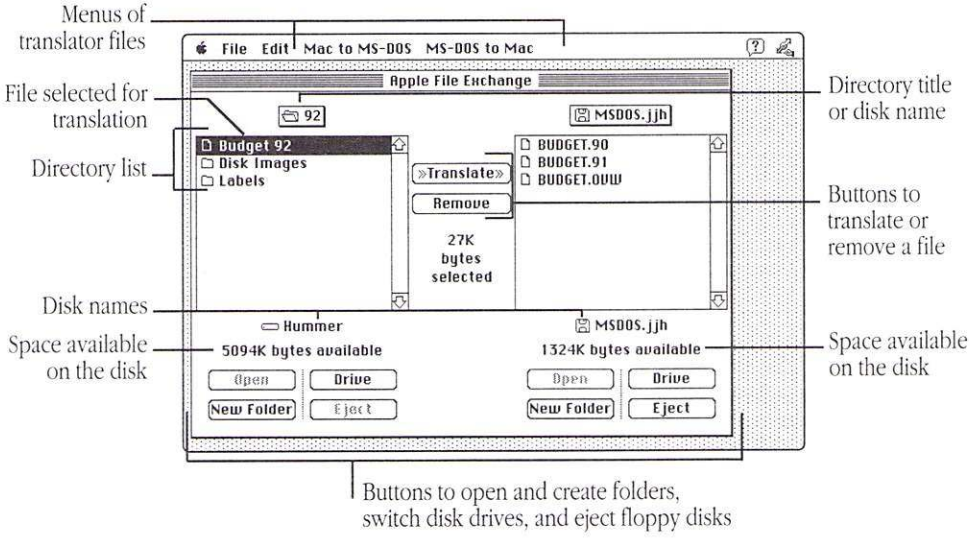


Figure C-4 The Apple File Exchange window and menu bar

Follow these steps to translate a file:

1. **Start Apple File Exchange by double-clicking its icon.**

   The program's window opens, listing the contents of the active window on the left side. An empty list box appears on the right side.

2. **Use the Open, Drive, and Eject buttons to display the files you want to translate and the disk or folder where you want to store the translated files.**

3. **Click the names of the files or folders you want to translate.**

   To select multiple files or folders, hold down the Shift key and click each name. You may have to scroll to locate the names of some files or folders.

4. **Open the translation menu you want by pointing to its title and holding down the mouse button.**

   If you are translating MS-DOS files into Macintosh files, open the MS-DOS to Mac menu. This menu shows the three translators provided with Apple File Exchange (DCA-RFT/MacWrite, text translation, and the default binary translation) and any other translators you've added. (See Figure C-5.)

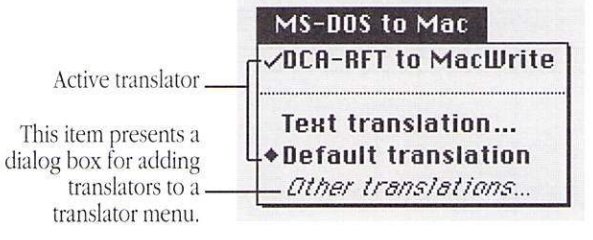


Figure C-5 The MS-DOS to Mac translator menu in Apple File Exchange

5. **Make sure that the translators for the types of files you've selected have checkmarks; if not, choose them.**

   An active translator has a checkmark. The default translator has a diamond (indicating that it's always active). Choosing an active translator makes it inactive.

6. **Compare the size of the files or folders selected for translation with the space available on the destination disk.**

   The total space required appears between the lists; the space available on the destination disk appears below its name.

   If the size of the selected items is greater than the space available on the destination disk, then deselect some of the items (by Shift-clicking them), remove some files on the destination disk (using the Remove button), or change to another destination disk (using the Eject button).

7. **Click the Translate button.**

   If Apple File Exchange finds two or more active translators—other than Text or Default—capable of translating a selected file, a message asks you to select the translator you want.

   If the names of files or folders on the destination disk are the same as those of files or folders being translated, a message asks you to rename the file being translated.

   If a translator requires you to select options before a file is translated, it presents a dialog box in which you select the options.

8. **Respond to any dialog boxes by selecting a translator, renaming the file, or selecting options.**

   The selected files or folders are translated. Messages report the status of copying.

   If Macintosh files are being translated into MS-DOS files, the names of translated files may be shortened to conform to the naming conventions of MS-DOS.

9. **When all translations are finished, choose Quit from the File menu.**

❖ *Converting MS-DOS files on a file server:* Some file servers can simultaneously store information created by Macintosh computers and MS-DOS computers. For example, the AppleShare PC program allows MS-DOS computers to store and translate files on an AppleShare file server. Consult your authorized Apple dealer or representative for more information about using a file server and MS-DOS files. ❖

Other file-conversion options

Apple File Exchange provides several options to assist you with file conversions. Figure C-6 shows the program's File menu, where you choose these options.

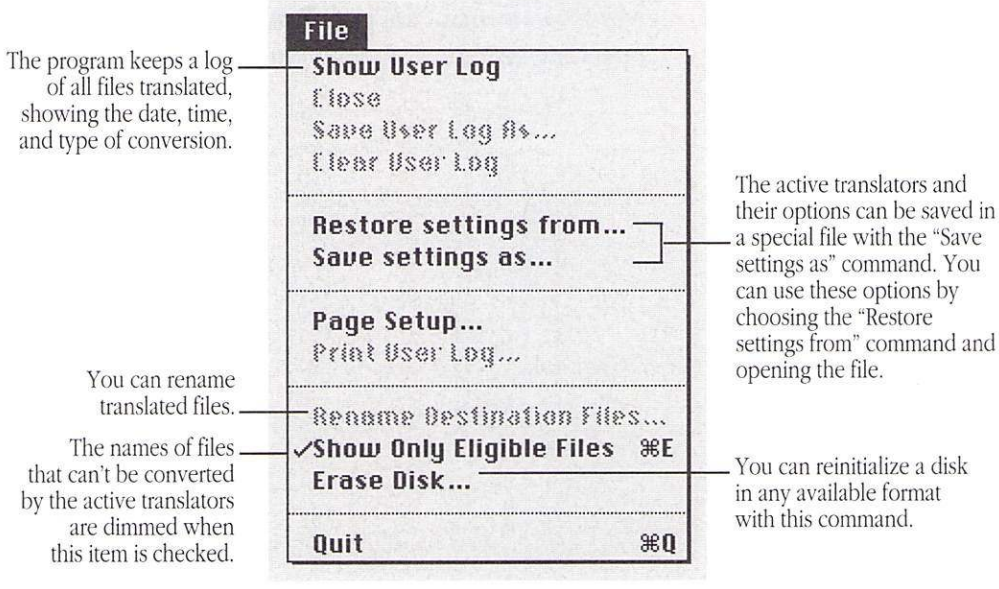


Figure C-6 The File menu in Apple File Exchange

More information about Apple File Exchange options

To see explanations of the translators Apple File Exchange uses, choose About the Apple File Exchange from the Apple menu. Select a translator in the list that appears, then click the About button for information about that item. (Click Done to return to the program's window.)

Converting Apple II files with Apple File Exchange

Apple File Exchange allows you to translate files to and from the ProDOS format used by Apple II computers. Apple File Exchange converts ProDOS files to and from Macintosh format and MS-DOS format. You can obtain translators for ProDOS and other operating systems from your authorized Apple dealer.

Special Aids for Using the Mouse, Keyboard, and Screen

The Macintosh system software includes components designed to assist people who have difficulty using the keyboard or the mouse or reading the screen. One part of this software is the Easy Access control panel, which provides alternative ways to move the pointer and use the keyboard; the other part is the CloseView program, which magnifies the images displayed on the screen.

Keyboard and mouse assistance with Easy Access

When you install System 7, the Easy Access control panel appears along with the other control panels inside the System Folder.

You open the Easy Access control panel by choosing Control Panels in the Apple menu.

The Easy Access control panel provides three features—Mouse Keys, Slow Keys and Sticky Keys. These features assist people who have difficulty typing with both hands or with manipulating the mouse. They're also useful to anyone who wants to use the keyboard with one hand or to make very fine movements of the pointer with better control.

Figure D-1 shows the icon and open window of the Easy Access control panel.

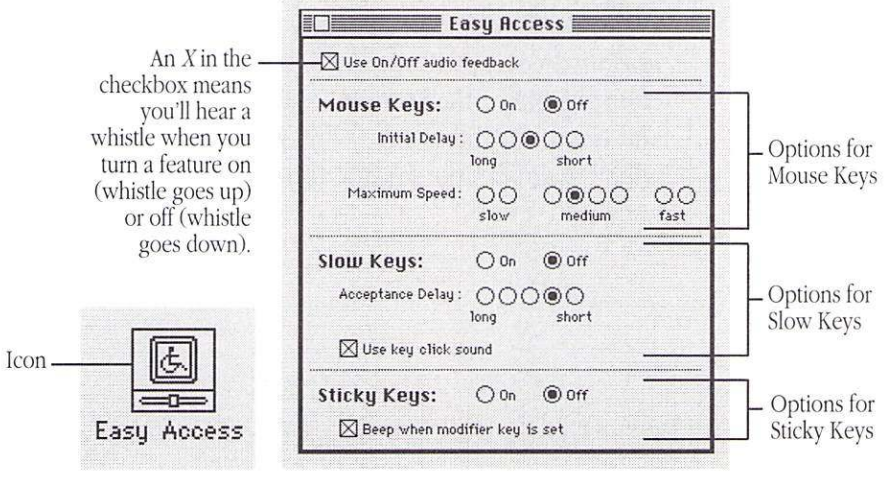


Figure D-1 Easy Access control panel and its icon

Turning Mouse Keys, Slow Keys, and Sticky Keys on or off and setting options

You use the Easy Access control panel to turn Mouse Keys, Slow Keys, and Sticky Keys on or off and to set their options. To open this control panel, choose Control Panels from the Apple menu and then double-click the Easy Access control panel icon.

To turn Mouse Keys on or off and set its options:

- **Click a button to turn Mouse Keys on or off and to set the initial delay and maximum speed for mouse movement. (See Figure D-2).**

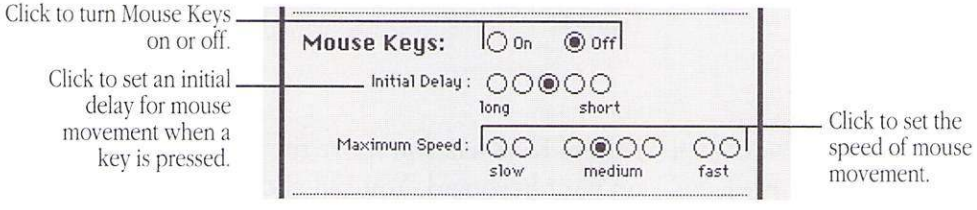


Figure D-2 Options for Mouse Keys

To turn Slow Keys on or off and set its options:

- **Click a button to turn Slow Keys on or off and to set the acceptance delay for keystrokes and the key click sound. (See Figure D-3.)**

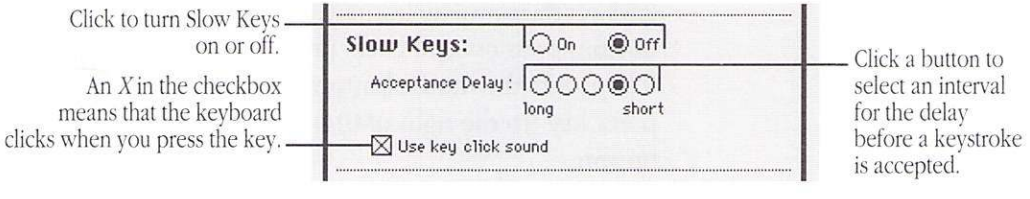


Figure D-3 Options for Slow Keys

To turn Sticky Keys on or off and set its options:

- **Click a button to turn Sticky Keys on or off and to set the beep indicating that a modifier key has been pressed. (See Figure D-4.)**

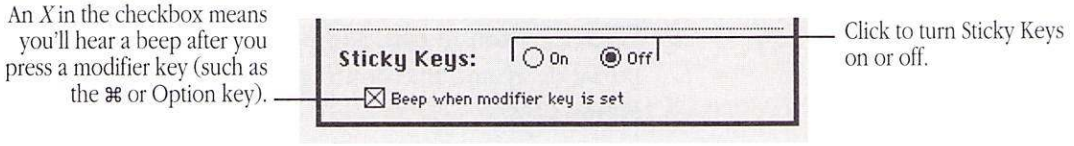


Figure D-4 Options for Sticky Keys

Pointer control with Mouse Keys

Mouse Keys lets you move the pointer using the numeric keypad on your keyboard. You can click, drag, and perform all the usual mouse activities with the keypad, and you can gain precise control of mouse movements when needed.

To use Mouse Keys, follow these steps:

- **To turn on Mouse Keys, press ⌘-Shift-Clear.**
- **Use the numeric keypad to move the pointer and to click, drag, and make other mouse movements.**

  Figure D-5 shows the pointer movement produced by pressing keys on the numeric keypad. The 5 key serves as the mouse button: press once to click; press twice to double-click. The 0 key locks the mouse button down for dragging. The decimal point key (to the right of 0) or the 5 key unlocks the mouse button.
- **To turn off Mouse Keys, press Clear.**

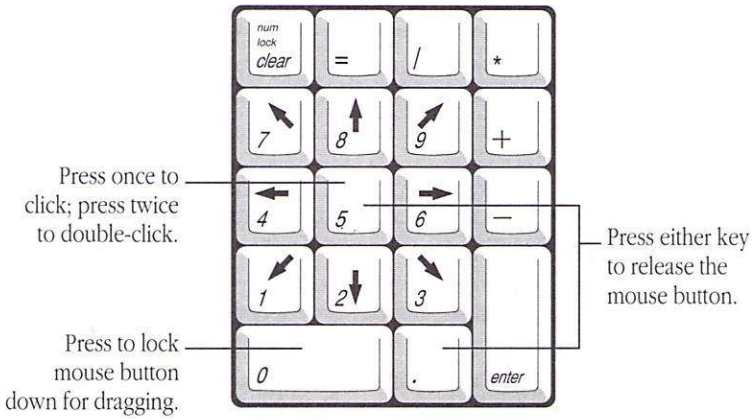


Figure D-5 Pointer movements and mouse control with Mouse Keys turned on

➤ *See also:* "Using Special Keys and Indicators on the Keyboard" in Chapter 1
Appendix A, "Keyboards and Character Sets"

Using Slow Keys for keyboard control

Slow Keys helps prevent accidental keypresses by waiting a brief amount of time before accepting a keystroke. You can use Slow Keys in combination with Sticky Keys if you wish.

To use Slow Keys:

- **To turn on Slow Keys, press the Return key for about 8 seconds. (After 4 seconds, you will hear a short warning beep.)**
- **Press the keys as you normally do.**
- **To turn off Slow Keys, press the Return key for about 8 seconds. (After 4 seconds, you will hear a short warning beep.)**

Typing keyboard commands with Sticky Keys

Sticky Keys lets you type combination keystrokes, consisting of a modifier key and another key, without actually pressing the keys simultaneously. The modifier keys are the ⌘ key, Option key, Shift key, and Control key.

When Sticky Keys is turned on, it displays one of its three icons at the right side of the menu bar (next to the icon for the Application menu). These icons indicate that the feature is on, that a modifier key has been pressed, or that a modifier key has been locked (by pressing it twice). Figure D-6 shows the Sticky Keys icons.

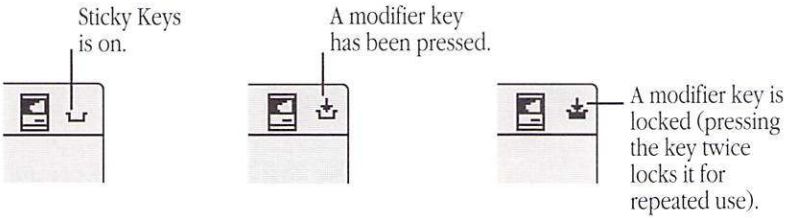


Figure D-6 Icons for the Sticky Keys feature of Easy Access

To use Sticky Keys:

- **To turn on Sticky Keys, press the Shift key five times without moving the mouse.**
- **Press the modifier key you want to use, then press the additional key or keys that complete the command.**

  When you press a modifier key, the Sticky Keys icon changes to indicate that the modifier key is set or locked. (See Figure D-6.) Pressing a modifier key once sets it; pressing the key twice locks it.
- **To turn off Sticky Keys, press the Shift key five times, or press any two modifier keys at the same time.**

Magnifying the screen with CloseView

CloseView is a utility program supplied with Macintosh system software that magnifies the image on the screen.

You install CloseView by dragging its icon to the Control Panels folder (in the System Folder) of your startup disk, then restarting your computer. (See Figure D-7.)

Figure D-7 The CloseView icon

You turn CloseView on and select its features in the CloseView control panel. Choose Control Panels from the Apple menu, then open the CloseView icon to display the CloseView control panel. (See Figure D-8.) Then select the options you want to use.

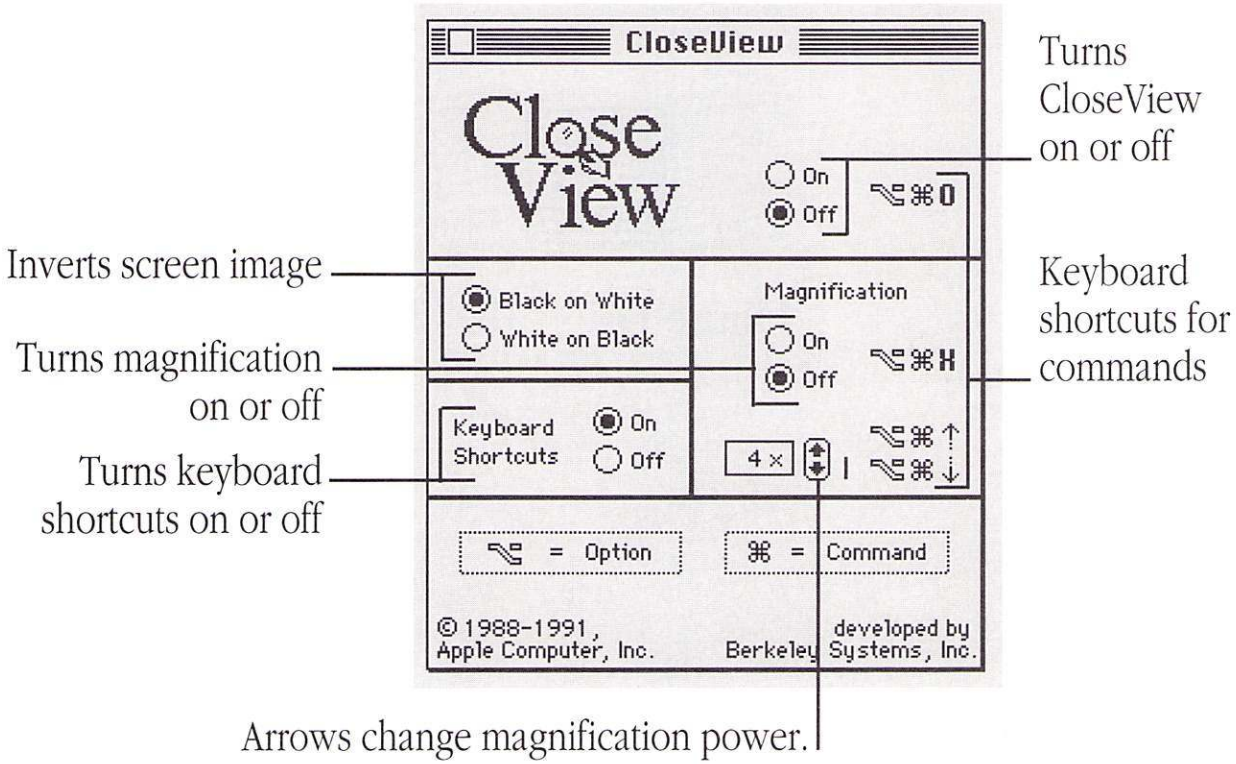


Figure D-8 The CloseView control panel

To turn CloseView on or off, press Option-⌘-O.

When CloseView is on, you'll see its frame (a heavy box covering a portion of the screen). The frame moves when you move the pointer on the screen or when you type (the frame follows the insertion point).

When the frame is displayed, you can turn magnification on with the keystroke Option-⌘-X. (The same keystroke turns magnification off.)

To increase or decrease the power of magnification, use the keystroke Option-⌘–Up Arrow (increase) or Option-⌘–Down Arrow (decrease).

Where to Get More Information About Your Macintosh

As you increase your knowledge of computers and develop new uses for your Macintosh, you may want to know what other Macintosh users in your area are doing with their computers, or you may want to learn more about programming, hardware design, or other technical topics.

The information in this appendix provides a starting point for you to expand your Macintosh knowledge and contacts.

Macintosh user groups

Whatever your level of computer experience, you can get lots of support by joining a Macintosh user group. Macintosh user groups are composed of people who work with Macintosh computers and who enjoy sharing what they know with others. Activities may include demonstrations of new products, question-and-answer sessions, and classes on using popular programs or learning to write your own programs. Many user groups have special beginners' meetings.

Ask your authorized Apple dealer for the name of the Macintosh user group nearest you, or call 1-800-538-9696 for more information. For user groups outside the United States, or if you're interested in starting your own user group, contact

Berkeley Macintosh User Group
1442-A Walnut Street, #62
Berkeley, CA 94709
(617) 367-8080

or

Boston Computer Society
One Center Plaza
Boston, MA 02108
(617) 367-8080

Technical information

A variety of technical documentation is available for the Macintosh. Apple Computer releases technical information through three primary outlets: the Apple Technical Library and the Apple Communications Library, both published by Addison-Wesley Publishing Company, and the APDA developer's association.

Apple Technical Library

The Apple Technical Library includes comprehensive technical documentation for all Macintosh computer models and the multivolume guide to the Macintosh operating system for all models, *Inside Macintosh.*

Other books in the Apple Technical Library cover designing expansion cards and programming device drivers for the Macintosh, writing application programs for the Macintosh, designing the user interface for Macintosh programs, and the comprehensive guide to the AppleTalk network system, *Inside AppleTalk.*

You'll find the Apple Technical Library in most well-stocked bookstores.

Apple Communications Library

The Apple Communications Library offers complete technical information about Macintosh communications products and the Macintosh in a network environment. The library includes an introductory volume, *Understanding Computer Networks,* and the *AppleTalk Network System Overview.*

The books in the Apple Communications Library are available at bookstores.

For more information

APDA (Apple Programmers and Developers Association) offers worldwide access to a broad range of programming products, resources, and information for anyone developing on Apple platforms. You'll find the most current versions of Apple and third-party development tools, debuggers, compilers, languages, and technical references for all Apple platforms. To establish an APDA account, obtain additional ordering information, or find out about site licensing and developer training programs, please contact

APDA
Apple Computer, Inc.
20525 Mariani Avenue, M/S 33-G
Cupertino, CA 95014-6299

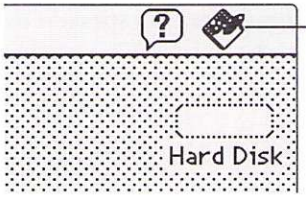
1-800-282-2732 (United States)
1-800-637-0029 (Canada)
1-408-562-3910 (International)
Fax: 1-408-562-3971
Telex: 171576
AppleLink address: APDA

If you provide commercial products and services, please call 1-408-974-4897 for information on the developer support programs available from Apple.

Glossary

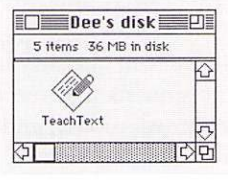
A

active application program The application program currently being used. With System 7, a number of programs can be open at a time, but only one of them is the active program. The active program is represented by a small icon at the top-right corner of the menu bar. You can switch from one program to another by pulling down the menu under this icon, called the Application menu. See also **Application menu, application program.**



The icon of the active application is the title of the Application menu.

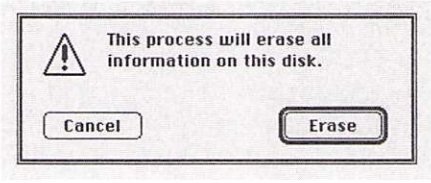
active window The frontmost window on the desktop, where the next action will take place. An active window's title bar is highlighted (with a series of lines).



ADB See **Apple Desktop Bus.**

Alarm Clock A desk accessory program that displays the current time and date, and can be set to function as an alarm.

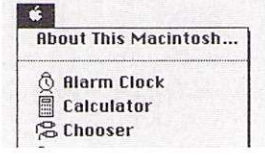
alert box A box that appears on the screen to give a warning or error message. Its appearance is sometimes accompanied by an alert sound.



alias A representative of the original of a document, folder, program, or disk that you can use as if it were the original. When you double-click the icon of an alias, the alias locates the original and the original opens. The name of an alias appears in italics.

Apple Desktop Bus (ADB) Built-in circuitry for most Apple computers that you use to attach the keyboard, mouse, and other devices, such as graphics tablets, hand controls, and specialized keyboards. Apple Desktop Bus ports are on the computer's back panel and marked with a "branching" icon. See also **bus.**

Apple menu The menu farthest to the left in the menu bar, indicated by an Apple symbol, from which you get information about programs' memory use and open items placed in the Apple Menu Items folder.



AppleTalk network A combination of devices, cables, and software that operate according to the protocols (rules) developed by Apple Computer. A communications environment in which many different kinds of computers, peripherals, and software can work together.

Application menu The menu at the right end of the menu bar that shows which application programs are open and has commands for hiding and showing open windows.

application program A program written for some specific purpose, such as word processing, database management, graphics, or telecommunication. Many application programs are represented by an icon that shows a hand working with a document.

audio output jack A connector on the back panel of the Macintosh marked with a speaker icon. You use the audio output jack to attach headphones or speakers to your Macintosh.

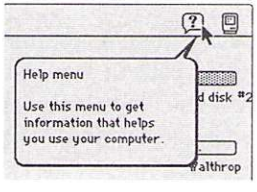
B

background printing The ability to continue working with your Macintosh while printing a document on a LaserWriter printer.

back panel The rear surface of the computer, which includes the power switch, the power connector, and ports for attaching peripheral devices.

back up (v) To make a copy of a disk or of a file on a disk. Backing up your files and disks ensures that you won't lose information if the original is lost or damaged.

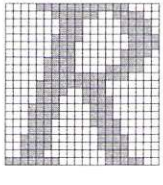
balloon An on-screen description of an object on the screen, such as an icon or an option in a dialog box. You turn balloons on and off using the Show Balloons and Hide Balloons commands in the Help menu.



bit A contraction of *binary digit.* The smallest unit of information that a computer can hold. The value of a bit (1 or 0) represents a simple two-way choice, such as on or off, true or false, black or white, and so on.

bitmap A set of bits that represents the graphic image of a document in memory. Used by the Macintosh to construct some kinds of graphic images and fonts.

bitmapped character A character that exists in a computer file or in memory as a bitmap, and is drawn as a pixel pattern on the screen. See also **pixel.**

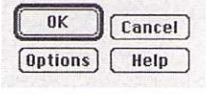


bitmapped font A font in a single size made up of bitmapped characters (also called *fixed-size font*). Some fonts stored in the Macintosh System file are bitmapped fonts. Compare **TrueType font.** See also **font.**

buffer A "holding area" in memory where information can be stored by one program or device and then read at a different rate by another. For example, some printers have built-in memory to store text that comes from the computer faster than it can be printed. This memory, which frees the computer for other work while the printer is printing, is called a *print buffer.*

bus Circuits inside the computer that transmit information from one part of a computer system to another. For example, the Apple Desktop Bus transmits information about mouse movement or keyboard input. In a network, a bus is a line of cable with connectors that link devices together.

button An image, sometimes resembling a pushbutton, that you click to designate, confirm, or cancel an action. Compare **mouse button.**



byte A unit of information consisting of a fixed number of bits. One byte usually consists of a series of eight bits, and represents one character (such as a letter, numeral, or punctuation mark). See also **kilobyte, megabyte.**

C

cache See **memory cache, disk cache.**

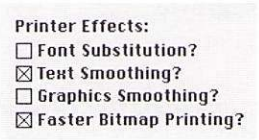
Calculator A desk accessory that works like a four-function pocket calculator. Calculation results can be copied and pasted into your documents using the Copy and Paste commands from the Edit menu.

Cancel button A button that appears in some dialog boxes. Clicking it cancels the command just chosen.

central processing unit (CPU) The "brain" of the computer; the microprocessor that performs the actual computations. See also **processor, coprocessor.**

character Any symbol that has a widely understood meaning and thus can convey information, such as the letters, numerals, and punctuation marks indicated on the computer's keyboard.

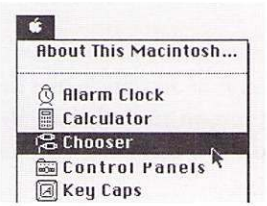
checkbox A small box associated with an option in a dialog box or window. When you click the checkbox, you may change the option or affect related options. An option is "on" when you see an *X* in the checkbox.



chip See **integrated circuit.**

choose To pick a command by dragging through a menu. You normally choose a command after you've selected something for the command to act on.

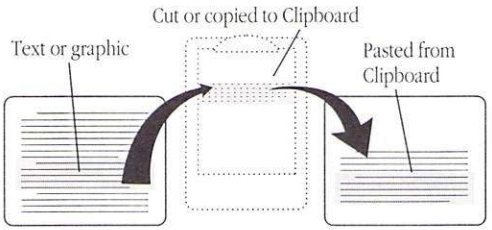
Chooser A desk accessory that lets you designate devices, such as printers and shared disks on a network, that your Macintosh will use.



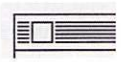
Clear A command in the Edit menu that removes selected material without placing it on the Clipboard. You can use the Undo command immediately after using Clear if you change your mind. Compare **Cut.**

click To position the pointer on something, and then to press and quickly release the mouse button. Clicking is normally used to select an icon, a word or object in a document, a choice in a window, or a choice in a dialog box.

Clipboard An area in the computer's memory that functions as a holding place for what you last cut or copied. Information on the Clipboard can be pasted into documents.

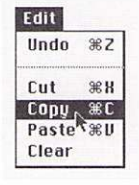


close box The small box on the left side of the title bar of an active window. Clicking it closes the window.



color wheel Available on computers with color capability, the color wheel dialog box lets you adjust hue, saturation, and brightness of the highlight color and other color choices. It is also used to adjust shades of gray.

command An instruction that causes the computer to perform some action. The most common form of Macintosh commands are the commands listed in a menu. These are chosen by using the mouse and pointer. Some commands can also be typed from a keyboard.



configuration (1) The way you have your computer set up. (2) The combined hardware components—computer, monitors, keyboard, and peripheral devices—that make up a computer system. (3) The software settings that allow various hardware components of a computer system to communicate with each other.

control panels Programs that let you change various Macintosh features, such as sound, mouse movement, and keyboard options. Control panels are located inside the System Folder.

coprocessor An auxiliary processor designed to relieve the demand on the main processor by performing a few specific tasks. Generally, coprocessors handle tasks that would be performed much more slowly by the main processor, such as mathematical calculations.

Copy A command in the Edit menu that copies selected material and places it on the Clipboard, without removing the material from the original document. See also **Clipboard.**

copy-protect To make a disk uncopyable. Software publishers sometimes copy-protect their disks to prevent them from being illegally duplicated. See also **lock.**

CPU See **central processing unit.**

current application See **active application program.**

current startup disk The disk that contains the System Folder the computer is currently using. The startup disk icon always appears in the upper-right corner of the desktop.

cursor See **pointer.**

Cut A command in the Edit menu that removes selected material and places it on the Clipboard; from there you can paste it elsewhere. Compare **Clear.** See also **Clipboard.**

cut and paste To move something from one place in a document to another place in the same document or to a different document. It's the computer equivalent of using scissors to clip something and glue to paste the clipping somewhere else.

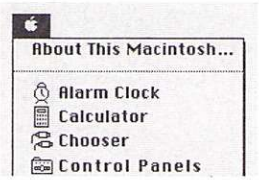
D

daisy-chain A chain of peripheral devices that connect to the computer through a single port. SCSI devices and Apple Desktop Bus devices can be daisy-chained.

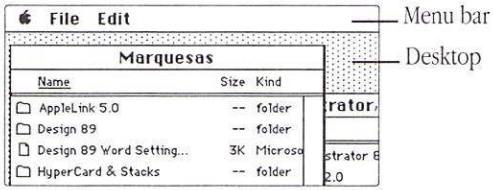
default A value, action, or setting that a computer system assumes, unless you give it a different instruction. (Also called *preset.*)

deselect To change a selected item, such as an icon, so that it is no longer selected. In the Finder, you deselect highlighted icons by pressing the Shift key and clicking the icon you want to deselect, or by selecting something else.

desk accessories Small application programs that are useful additions to your system. Desk accessories (sometimes abbreviated DAs) provided with the Macintosh include the Alarm Clock, Calculator, Chooser, control panels, Key Caps, and Scrapbook. You may find it useful to put desk accessories in the Apple menu.

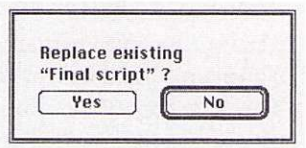


desktop Your working environment on the computer—the menu bar and the background area on the screen. You can have a number of documents and programs open on the desktop at the same time.

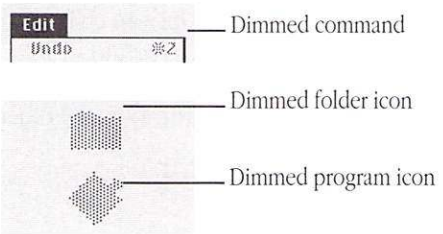


destination The disk or folder that receives a copied or translated file, as in *destination disk.*

dialog box A box that contains a message, often requesting more information from you or allowing you to select options. Sometimes the message is accompanied by an alert sound.



dimmed A term used to describe words or icons that appear grayed or filled in with a pattern of dots. For example, menu commands appear dimmed when they are unavailable. A dimmed icon represents an opened disk, folder, or program, or a disk that has been ejected. Double-clicking a dimmed disk or folder icon causes the window for the disk or folder to become the active window. Double-clicking a dimmed program icon makes that program active.



directory A list of the contents of a folder or a disk. By using commands from the View menu, you can set a directory window in the Finder to present its contents pictorially, alphabetically, chronologically, or according to size or label.

directory dialog box A dialog box you use to locate files and change disks from within an application program. A directory dialog box appears whenever you choose the Open or Save As command from within an application program.

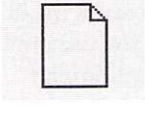
disk A flat, circular, magnetic surface on which information can be recorded in the form of small magnetized spots, in a manner similar to the way sounds are recorded on tape. See also **floppy disk, hard disk.**

disk cache A portion of the Macintosh main memory (RAM) that is set aside for programs to store frequently used instructions. You use the Memory control panel to adjust the size of the disk cache. Compare **memory cache.**

disk capacity The maximum amount of data a disk can hold, usually measured in megabytes (MB) or kilobytes (K). For instance, Apple 3.5-inch disks typically have a disk capacity of 1.4 MB, 800K, or 400K. Hard disks can hold from 20 MB to 160 MB, or more.

disk drive The device that holds a disk, retrieves information from it, and saves information on it. There are two types of disk drives: hard disk drives and floppy disk drives. All models of Macintosh computers contain at least one built-in disk drive.

document Whatever you create with an application program. Documents are usually represented by icons that look similar to the icons of the programs that created them. See also **file.**



double-click To position the pointer on an object, such as an icon, and then press and release the mouse button twice in quick succession without moving the mouse. Double-clicking an icon opens the document, application program, or disk that the icon represents.

download To transfer information from one computer to another, or from a computer to a peripheral device such as a printer. A LaserWriter printer downloads fonts automatically if you print a document containing fonts that are stored in your computer.

drag To position the pointer on something, press the mouse button, move the mouse, and release the mouse button. When you release the mouse button, you either confirm a selection or move an object to a new location.

driver A system program that allows the microprocessor to direct the operation of a peripheral device, such as a printer or scanner. (Also called a *resource.*) Drivers are represented by icons; to install drivers, you usually drag their icons to your System Folder and restart the computer.

E

Easy Access A feature of Macintosh system software that assists people who have difficulty typing on the keyboard or manipulating the mouse. The Easy Access control panel provides options.

edition A file that contains material that has been designated as a publisher in a document. The material in the edition can be inserted into other documents (called *subscribers*) and updated automatically in all subscribing documents when the publisher in the original document is changed. See also **publisher, subscriber.**

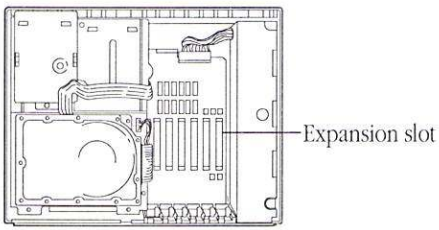
Edit menu A menu that is available in most programs and lists editing commands such as Cut, Copy, and Paste.

eject To remove a disk from a disk drive.

error message A message displayed on the screen that tells you of an error or problem in a program or in your communication with the Macintosh. An error message is often shown in an alert box and accompanied by a sound.

expansion card A removable circuit board that plugs into one of the expansion slots in some models of the Macintosh. Expansion cards enable the computer to use a special device or to perform an additional function.

expansion slot A long, thin socket on the main circuit board of some Macintosh models into which you can install an expansion card that gives the computer additional capabilities.



extension See **system extension.**

F, G

file Any named collection of information stored on a disk. Application programs and documents are examples of files. You make a file when you create information (such as text or graphics) using a program, give the material a name, and save it on a disk. (This kind of file is called a *document.*)

File menu A menu that lists commands that affect whole documents and other files—commands such as Save, Print, and Quit.

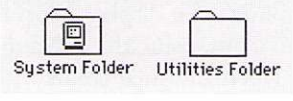
file server A computer with special software that allows a large number of network users to store and retrieve files on the hard disks or other storage devices attached to it. Compare **shared disk.**

Finder A part of Macintosh system software that's always available. The Finder creates the desktop and keeps track of your files. You use the Finder to manage documents and application programs, and to get information to and from disks.

fixed-size font See **bitmapped font.**

floppy disk A disk made of flexible plastic that stores computer data. The disks used in Macintosh disk drives are floppy disks housed in rigid, plastic containers.

folder A holder for documents, programs, and other folders on the desktop. Folders let you organize information in any way you want.



font A collection of letters, numbers, punctuation marks, and other typographical symbols with a name and consistent appearance. See also **bitmapped font, TrueType font.**

This is New York font.

This is Geneva font.

format See **initialize.**

H

halftone A process of representing a continuous-tone image (like a photograph) by converting each gray area into a pattern of black and white dots of various sizes.

hard disk A disk made of metal and permanently sealed into a drive or cartridge. A hard disk stores very large amounts of information (20 MB–160 MB) and operates much faster than a floppy disk.

high-density disk A floppy disk that can store 1.4 megabytes (MB) of information. High-density disks can be used only with the SuperDrive floppy disk drive.

highlighted An icon or an area of text or graphics on the screen that is visually distinct from its background, usually because it has a different color or because it is filled in. Highlighting indicates that an object is selected.

I, J

I-beam A type of pointer shaped like the capital letter *I* and used for entering and editing text. See also **insertion point.**

I-beam

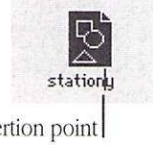
icon An image on the screen, usually representing an item such as a file, document, disk, or application program that you can select and open. For example, a floppy disk icon is a miniature of that type of disk.

INIT See **system extension.**

initialize To prepare a disk to receive information by organizing its surface into tracks and sectors; also called *formatting.* If you reinitialize a disk with information on it, the information is erased.

input Information transferred into a computer from some external source, such as the keyboard, the mouse, a disk drive, or a modem. Compare **output.**

insertion point The place in a document where text or an image will be added; you set it by clicking at the spot where you want to insert material. The insertion point is sometimes represented by a blinking vertical bar.



Installer A program that installs or updates your system software and lets you add additional resources such as networking software.

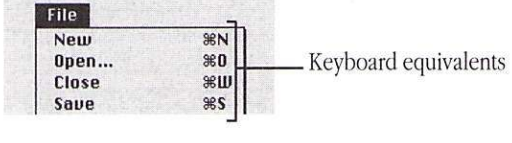
integrated circuit (IC) An electronic circuit entirely contained in a single piece of semiconducting material, usually silicon. Often referred to as a *chip.*

interface The way a computer communicates with you. Often referred to as the computer's *human interface* or *user interface.*

K

K See **kilobyte.**

keyboard shortcut A combination of keys that you can press to give a command or perform a task without using the mouse. Keyboard shortcuts almost always include the ⌘ key, and can be convenient alternatives to choosing menu commands with the mouse. Also called a *Command-key equivalent* or *keyboard equivalent.*



Key Caps A desk accessory that shows you the standard and optional characters available in each font in your system.

kilobyte (K) A unit of measure consisting of 1024 bytes. See also **byte, megabyte.**

L

label A word or short phrase (plus a color on Macintosh computers that display color) that you can assign to icons, using the Label menu. You can change labels and their colors with the Labels control panel.

lock To prevent files or disks from being changed or deleted (they can still be opened or copied). Individual files are locked using the Get Info command. A floppy disk can be physically locked by sliding the small tab on the back of the plastic case toward the edge of the disk. This opens a small square hole in the disk case.

M

main logic board A large circuit board that holds RAM, ROM, the microprocessor, custom integrated circuits, and other components that make the computer work.

main memory The part of a computer's memory whose contents are directly accessible to the microprocessor; usually synonymous with *random-access memory* (RAM). Programs are loaded into main memory, where the computer keeps information while you're working. Sometimes simply called *memory.* See also **random-access memory, read-only memory.**

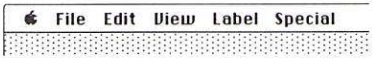
megabyte (MB) A unit of measure equal to 1024 kilobytes, or 1,048,576 bytes. See also **byte, kilobyte.**

memory A hardware component of a computer system that can store information for later retrieval. See **main memory, random-access memory, read-only memory.**

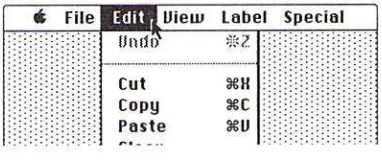
memory cache Memory that is dedicated to increasing the efficiency and operating speed of the computer. Some Macintosh computers offer an internal connector for an optional memory cache card. Compare **disk cache.**

menu A list of actions from which you can choose. Menus commonly appear when you point to and press menu titles in the menu bar or in a dialog box. You choose a command by dragging through the menu and releasing the mouse button when the command you want becomes highlighted. See also **pop-up menu, pull-down menu.**

menu bar The white strip across the top of your screen that contains the titles of the menus available to you.



menu title A word, phrase, or icon in the menu bar or in a dialog box. Positioning the pointer on a menu title and holding down the mouse button causes the menu to appear. You then drag to choose a command.

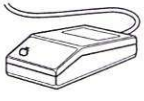


modem A contraction of *modulator/demodulator.* A device that links your computer to other computers and information services over telephone lines.

modem port A connector on the computer's back panel marked by a telephone icon. A port that you can use to attach a modem to the computer, or to connect the computer to a network system.

monitor See **video monitor.**

mouse A small device that controls a pointer on the screen. When you move the mouse on a flat surface, the pointer moves on the screen.



mouse button The mechanical button on top of the mouse. In general, pressing the mouse button initiates some action on whatever is under the pointer on the screen, and releasing the button confirms the action.

Mouse Keys An Easy Access feature that lets you use keys on the numeric keypad to move the pointer.

MS-DOS An acronym for Microsoft Disk Operating System, a commonly used computer operating system. Macintosh computers with a SuperDrive can initialize floppy disks and read and write data in MS-DOS format using the Apple File Exchange program provided with the Macintosh system software.

N

nested folder A folder within another folder.

network A collection of devices, such as computers and printers, that are connected together. A network is a tool for communication that allows users to store and retrieve information, share printers, and exchange information.

Note Pad A desk accessory that stores small amounts of text.

NuBus An address bus and data bus incorporated into the Macintosh II–family and some other Macintosh computers. NuBus lets you add a variety of components to the computer system, through expansion cards installed in NuBus expansion slots inside the computer. See also **expansion slot.**

numeric keypad A calculator-style keypad, to the right of the main keyboard, that you can use to type numbers. Some application programs designate the keys on the numeric keypad as function keys that you can use to give commands.

O

open To make available. You open files in order to work with them. Opening an icon usually causes a window to appear, revealing the document or application program the icon represents or showing you the contents of a folder or disk. You may then perform further actions on the contents of the window.

operating system A program that organizes the internal activities of the computer and its peripheral devices. An operating system performs basic tasks such as moving data to and from devices, managing information in memory, and so on. (The Finder is analogous to an operating system for the Macintosh.)

output Information transferred from the computer's microprocessor to some external device, such as the screen, a disk drive, a printer, or a modem. Compare **input.**

P, Q

password A secret word that allows only you to see your data or messages sent to you through electronic mail or an information service.

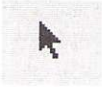
Paste A command in the Edit menu that places the contents of the Clipboard—whatever was last cut or copied—at the location of the insertion point. See also **Clipboard.**

peripheral device A piece of hardware—such as a video monitor, disk drive, printer, or modem—used with a computer and under the computer's control. Peripheral devices are often (but not always) connected to the computer by cables.

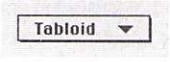
PICT A document format used by a number of graphics and page layout programs.

pixel A contraction of *picture element.* The smallest dot that the computer and monitor can display, or the visual representation of a bit on the screen (white if the bit is 0, black if it's 1 on a black-and-white monitor). Also a location in video memory that corresponds to a point on the screen. See also **bit.**

pointer An arrow or other symbol on the screen that moves as you move the mouse. You use the pointer to choose commands, select and move icons and text, and draw images.



pop-up menu A menu in a dialog box or elsewhere on the screen represented by a drop shadow box and a triangle. You choose an item from the menu by pressing the menu and dragging until the item you want is highlighted. Compare **pull-down menu.** See also **menu, menu bars,** and **menu title.**



port A socket on the back panel of the computer where you can plug in a cable to connect a peripheral device, another computer, or a network.

PostScript A language used to describe an image mathematically so that it can be accurately reproduced at virtually any size. Some laser printers use PostScript.

printer port A connector on the computer's back panel marked with a printer icon. A serial port that you can use to attach a printer to the Macintosh or to connect the Macintosh to a network.

processor The computer hardware component that performs the computations directed by software commands. In microcomputers such as the Macintosh, the processor is a single integrated circuit called a *microprocessor.* See also **central processing unit.**

program A set of instructions describing actions for a computer to perform to accomplish a task, conforming to the rules and conventions of a particular programming language. Computer programs are collectively referred to as *software.* See also **application program.**

publisher Material in a document that you want to update automatically in other documents (called *subscribers*). When you designate a publisher in a document, a special file called an *edition* is created. You insert the edition into the subscribing documents. See also **edition, subscriber.**

pull-down menu A menu usually in the menu bar at the top of the screen. The menu commands are hidden until you move the pointer to the menu title and press the mouse button. Compare **pop-up menu.** See also **menu, menu bar,** and **menu title.**

R

RAM See **random-access memory.**

random-access memory (RAM) Memory in which information can be referred to in an arbitrary or random order. RAM usually means the part of memory available for programs and documents that the computer reads from a disk; the contents of RAM are lost when the computer is turned off. Compare **read-only memory.**

Read Me document A document that is included on some application program and system software disks to provide you with late-breaking information about the product. You can use TeachText or any word-processing program to read the file.

read-only memory (ROM) Memory whose contents can be read but not changed. Information is placed into read-only memory only once, during manufacturing. ROM usually contains part of the system software. The contents of ROM are not erased when the computer's power is turned off. Compare **random-access memory.**

resource A file that is contained in the System Folder and that the computer uses for its operations. System files and drivers are examples of resources.

RGB monitor A type of color monitor that receives separate signals for each primary color (red, green, and blue) and uses these signals to display color images.

ROM See **read-only memory.**

root level When an icon is at the root level of a folder or disk, that means it appears in the window for that folder or disk. You do not need to open any additional folders to see the icon. Compare **nested folder.**

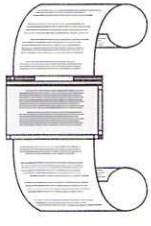
S

save To store information by transferring it from main memory (RAM) to a disk. Work that is not saved disappears when you turn off the computer or if the power is interrupted. It's a good idea to save your work frequently to avoid losing data.

scanning order The order in which the operating system searches the disk drives for a startup disk. See also **startup disk.**

Scrapbook A desk accessory in which you can save frequently used pictures or passages of text. The Scrapbook can store multiple images. You can cut or copy images from the Scrapbook and paste them into documents created with most application programs. Compare **Clipboard.** See also **cut and paste.**

scroll To move a document or directory in its window so that a different part of it is visible. To scroll through a document or directory, you use the scroll arrows, scroll bars, or scroll box.



SCSI See **Small Computer System Interface.**

SCSI cable terminator A device used in a SCSI chain to maintain the integrity of the signals passing along the chain. A SCSI chain should always have two terminators, one at each end of the chain. With some devices, such as the Apple internal hard disk, the terminator is built in.

SCSI chain A group of SCSI devices linked to one another through SCSI peripheral cables and linked to the SCSI port on the computer through a SCSI system cable.

SCSI port The connector on the back panel of the computer to which you connect SCSI devices.

select To designate where the next action will take place. To select something with the mouse, you click an icon or drag across text or graphics.

selection The information or items that will be affected by the next command. A selected item is usually highlighted.

serial ports The connectors for peripheral devices that receive data in a serial format (that is, one bit at a time), such as the printer and modem ports on the Macintosh.

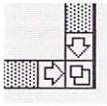
shared disk A hard disk connected to a computer on a network that contains files that other computers on the network can access. Compare **file server.**

Shift-click A technique that allows you to extend or shorten a selection by holding down the Shift key while you select (or deselect). You can also Shift-click multiple items in a list or group to select them all.

Shift-drag A technique that allows you to select two or more groups of objects by holding down the Shift key while you drag diagonally to enclose each group of objects in a rectangle.

SIMM An acronym for *Single In-line Memory Module,* a circuit board that contains RAM chips or ROM chips. SIMMs attach to SIMM sockets on the computer's main circuit board. See also **random-access memory, read-only memory.**

size box A box on the bottom-right corner of some active windows. Dragging the size box resizes the window.



Slow Keys A feature of the system software that provides a delay before each keystroke is accepted by the computer. You turn Slow Keys on and off with the Easy Access control panel.

Small Computer System Interface (SCSI) A specification of mechanical, electrical, and functional standards for connecting peripheral devices such as hard disks, printers, and optical disks to small computers. Macintosh computers use the SCSI interface for hard disks and other peripheral devices.

source The disk or folder that holds the original of a file to be copied or translated, as in *source disk.*

startup disk A disk with all the necessary program files—such as the Finder and System files contained in the System Folder—to set the computer into operation.

startup drive The disk drive from which you start your computer system. The disk in this drive must contain a System Folder.

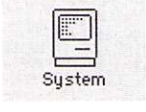
stationery A document that serves as a template. When you open a stationery document, a copy of the document is created and opened. The original remains unchanged.

Sticky Keys An Easy Access feature that lets you type combination keystrokes without actually pressing the keys simultaneously.

subscriber Material you insert into a document that can be updated whenever the original document (called the *publisher*) is changed. To insert a subscriber into a document, you open an edition file, which is created when material in the original document is designated as a publisher. See also **edition, publisher.**

system extension A program that expands the capabilities of system software. They include *drivers,* which make it possible for the computer to use a certain printer or other device, and programs that add features to the Finder or the system software. System extensions are stored in the Extensions folder in the System Folder.

System file A file that Macintosh computers use to start up and to provide systemwide information. The System file in system software version 7.0 or later also contains fonts, sounds, and keyboard files that you can easily open, install, or remove. The System file must be in the System Folder.



System Folder A folder containing the software that Macintosh computers use to start up and operate. A disk that contains a System Folder is a startup disk.

system software Software that supports application programs by managing memory and by communicating with input and output devices.

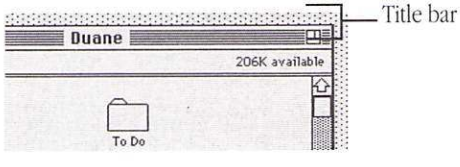
T

TeachText An application program provided with softwarethat functions as a limited word-processing program. It also allows you to view and select graphics that are in the standard PICT format.

terminator See **SCSI cable terminator.**

3.5-inch disk A flexible, plastic disk measuring 3.5 inches in diameter and having a rigid plastic jacket. These disks store 1.4 MB, 800K, or 400K of information, depending on the type of disk drive and formatting used. See also **kilobyte, megabyte.**

title bar The horizontal bar at the top of a window that shows the name of the window. When the window is active, the title bar is highlighted with a series of horizontal lines.



trackball An input device used as an alternative to the mouse. When you roll the ball with your finger, the pointer moves on the screen.

Trash An icon on the desktop that you use to discard documents, folders, and application programs you no longer want. You can also drag a disk icon into the Trash to eject the disk (if it's ejectable) and to remove its icon from the desktop.

TrueType font A font that can be displayed or printed at any size. Also called *outline font* or *variable-size font.* A set of TrueType fonts is supplied with the Macintosh system software. Compare **bitmapped font.**

U

unlock To allow a locked disk or document to be changed, deleted, or renamed. See also **lock.**

user group A computer club where computer users exchange tips and information.

user interface See **interface.**

utility programs Programs you use to perform special operations, such as installing or updating software, checking for damage on a disk, magnifying the image on the screen, and so on.

V

variable-size font See **TrueType font.**

version A number indicating the release of a particular piece of software. In general, the larger the number, the more recent the version.

video monitor A display device that can receive video signals by direct connection. Sometimes called a *monitor* or a *display.*

virtual memory Space on a hard disk that can be used as if it were RAM. Certain models of the Macintosh allow you to use virtual memory to extend the RAM built into the computer.

virus A malicious program that damages files. Virus programs can be spread though networks and bulletin board services as well as on disks. Virus detection and elimination programs are available through dealers and user groups.

volume A general term referring to a storage device; a source of or a destination for information. Often used in reference to hard disks and file servers. A volume can be an entire disk or only part of a disk.

W, X, Y

window An area that displays information. You create and view a document through a window, and you view the contents of your disks in windows. You can open or close a window, move it around, and sometimes change its size, scroll through it, and edit its contents. You can have many windows open at a time, and you can switch to another window by clicking it.

Z

zoom box A small box in the top-right corner of the title bar of some windows. Clicking the zoom box resizes the window so that you can see all of its contents (if possible); clicking it again returns the window to its original size.

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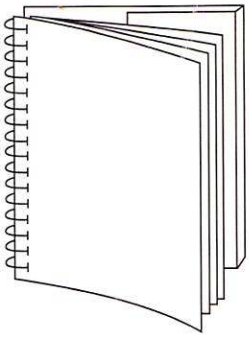

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